The Builder.

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ILLUSTRATIONS.

A Preliminary Idea for Liverpool Cathedral: Perspective ..... By Mr. A. H. Skipworth
Do. Do. Side Elevation ..... Do.
Do. Do. Interior ..... Do.
Rectory, Donhead St. Andrew, Wilts ..... Mr. C. E. Ponting, F.S.A., Architect.

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Highway Administration.

IN the Report of the Highway Committee appointed by the Local Government Board, will be found an intelligent survey of highway administration in England and Wales. The scope of the committee was to inquire into the general condition and sufficiency of the roads in the two countries, to suggest any desirable amendments of the law relating to these matters, and particularly to ascertain whether any change of the authorities or of their powers would be desirable, in view of the various purposes for which the roads now are, or shortly may be, used. From the Report recently issued it appears that many of the urban and rural district councils are responsible for very small mileages. Consequently it cannot be expected that such bodies should be able to maintain the roads under their charge so efficiently and economically as they might be maintained by authorities controlling large districts, in which the services of highly qualified officials are retained, where the most efficient road-making plant is almost invariably available, and where contracts for road material can be made on the advantageous terms always offered to large buyers. The committee very properly came to the conclusion that many of the smaller district councils should cease to act as highway authorities, and that their duties in this direction should be taken over by the county councils. It seems, however, that most of the district councils attach great importance to the retention of their control over local roads, and in deference to local sentiment the committee do not press the transference which they evidently feel to be desirable. From experience of such matters we strongly suspect that the local patriotism, to which reference is here made, has its origin chiefly in the objection entertained by surveyors and other officials, who usually dislike the removal of work from their offices. This is a most natural feeling, for which we have every sympathy, but the interests of the public must receive the first consideration. Again, we are not sure that the inhabitants of a small district are entitled to look upon any public highways as "local roads." Of course, all roads are local in one sense, but they are national in another, as everyone is free to travel upon them. There is evidence to show that inconvenience, and sometimes danger, is caused at points where the nature of the road material is abruptly changed, and, further, that deterioration of the surface resulting in excessive dust and mud, is in no small measure due to unsuitable material and inefficient maintenance. These defects are specially noticeable in what are sometimes termed local roads, which have been increasingly used by the general public, since the advent of motor vehicles. For these reasons we regret that the Report does not emphasize more strongly the necessity for transferring the administration of all country roads to the county authorities. Extravagance is always possible, and friction is certain under the existing system by which main roads are maintained in urban districts. These are characterised by the committee as serious matters, and the belief is expressed that friction would be removed, and greater uniformity, economy, and efficiency secured, "if it were possible to place the maintenance and improvement of all the principal roads in a county under the direct control of a County Highway Board, representative of all the authorities having at present rights and powers with regard to main roads." So far as it goes, this suggestion is excellent, and if all roads except those in county boroughs were included, instead of merely the "principal" roads, there would be no fault to find. It must not be forgotten, however, that if uniformity of maintenance is to be attained upon trunk roads, such portions of these thoroughfares as are situated within the county boroughs would necessarily have to be placed under the control of the suggested Highway Boards.

The scheme of administration now recommended, with the inclusion of all country roads, would secure uniformity of treatment of what the committee define as "county roads," but something more is required, for some highways are obviously of more than county importance, and, as suggested by the committee, their maintenance is a matter of national concern. Thoroughfares of this kind are described in the Report as "national roads," and for the maintenance of these it is proposed that the County Highway Boards should be responsible, subject to supervision by a central authority, which, it is suggested, might be a department of the Local Government Board.

Speaking generally, the recommendations made in the Report are worthy of approval, but it is clearly a mistake that the committee should view with equanimity the continued authority of admittedly incompetent bodies over some of the smaller roads in the various counties.

Turning to the question of the sufficiency or otherwise of existing roads, we observe that the evidence brought before the committee does not indicate any general insufficiency so far as the number and direction of roads are concerned. The congestion that undoubtedly occurs in the vicinity of large towns is attributed to one or more of the following causes: (1) Insufficient width of road; (2) want of alternative routes for traffic destined for places beyond the centre of the town; (3) the occupation of the road by tramway and light railway traffic; (4) the frequent and long-continued opening of the roads for the repair of pipes laid below them; and (5) want of power of the police authorities to regulate traffic, especially with regard to the position on the road of slow-moving traffic. The widening of roads on the outskirts of large towns is always an expensive matter, and the cost of such operations fairly belongs to the towns immediately concerned. We do not gather any definite expression of opinion on this point from the Report, but with regard to alternative routes, the committee consider "by-pass roads" are much required for through traffic in towns already crowded with local traffic, and we quite agree that the provision of such thoroughfares would certainly do much to relieve congestion. The committee believe that the principal obstruction to the free passage of ordinary vehicles in towns is to be found in the presence of tramcars upon roads of inadequate width, and they recommend that permission to lay tramway rails should only be given when the road is, or is to be,

made, of sufficient width to enable loaded waggons to pass freely on each side of the tram lines. This is a most reasonable and necessary condition.

In view of the fact that the obstruction to traffic caused by the opening of roads for laying or repairing pipes and other conduits is already occupying the attention of the Royal Commission on London Traffic, the committee content themselves with the following suggestions :—(1) That notice of an intention to open should always be given to the highway authority. (2) That the restoration of the road should always be done by the highway authority, but that the cost, not only of such restoration on the site of the opening, but also of any additional repair of other parts of the road rendered necessary by the diversion of the traffic, should be recoverable from those who are responsible for the opening. (3) That penalties should be more easily recoverable against any company or authority obstructing the road by its operation for an unreasonable period. To these useful suggestions another should be added to the effect that penalties should be payable by companies or authorities desiring to open roads or streets at unreasonable times. A provision of this kind would tend to discourage those companies which now seem to take a fiendish delight in tearing up road surfaces that have been newly made or repaired.

Some exception may possibly be taken to the recommendation that highway authorities should be empowered to recover from the owners of locomotive engines and waggons, damages for any injury to roads caused by their passage in exceptional conditions of the weather. This has the appearance of prejudice against a comparatively new development of traction, and it is not perfectly clear why the owners of mechanically-propelled vehicles should be punished for the vagaries of the weather. Horse-drawn waggons probably do quite as much mischief in bad weather, and considerably more, taking the whole year round, while the incessant pounding of horses' hoofs does more damage than all vehicles put together. The weights and dimensions of road locomotives and waggons are strictly limited by laws and regulations, and so long as these are complied with, it seems unfair to penalise this particular form of traffic, while other forms go scot-free, save for the general rate levied upon the population at large.

The desirability of apportioning further national funds in aid of road expenditure has already been considered by the Royal Commission on Local Taxation. To the recommendations of that Commission the present committee add the suggestion that, in the event of an additional grant being made, a considerable part of it could be most usefully employed in the construction of by-pass roads in the vicinity of large towns, and in the widening of existing roads of importance, rather than upon works of ordinary maintenance and repair.

From the Report to which we refer, it may be gathered that the most important matter for attention is the amendment and consolidation of the laws relating to highway administration, and the satisfactory accomplishment of this task will be followed in due course by the various minor reforms and improvements discussed by the committee.

FROM AMERICA.

ALMOST at the same moment that we give, in another column, a brief notice of the scheme of the thirty-seventh annual Convention of the American Institute of Architects, held at Cleveland, there reaches us the handsome volume containing the complete report of the proceedings of the thirty-sixth Convention at Washington last year.* The issue of the Report seems rather late in the day, but it is always worth attention when it does come, and it contains, as usual, much interesting matter.

The meeting of the last Convention at Washington naturally led to a special consideration of the great scheme in hand for the improvement of Washington; and if this scheme is brought to a successful termination, it will result in an ornamental treatment of a city precinct on a larger and more pompous scale than anything now in existence. The principal feature in the Report is the treatment of this subject in the two papers read by Mr. F. L. Olmsted and Mr. Charles Moore, which are so fully illustrated by plans and views that it is easy to follow out the whole problem. It is remarkable, and it says much for the architectural genius of L'Enfant, who laid out the city at the beginning, that the scheme now proposed is in the main but an extension and elaboration of the lines of his plan; and that, as Mr. Olmsted said, "all that is encouraging and stimulating in Washington, except the individual architecture of a few good buildings, is the direct and necessary outgrowth of the original plan."

At the outset of Mr. Olmsted's paper he emphatically said that the only hope of a successful issue in a case of this kind lay in the adherence of the various designers to a consistent plan or ideal, and he usefully contrasted the modern condition of things with that of the mediæval city. In that consistency was secured "through the almost universal adherence of the people to a rather varied range of mutually harmonious ideals." In such a city as mediæval Chester, it would never have occurred to any of the builders to build anything that was out of conformity with the genius of Chester. It was the only ideal they knew. The modern ideal has a wider horizon, and we have to select one point of view for a particular site and keep to it. It is well to have this distinction insisted on : it is often forgotten.

The plan of Washington, with all its streets and squares, was blocked out by L'Enfant in 1791, under the direction of Washington and Jefferson, while the land was still wild forest. Mr. Olmsted refers to Wren's plan for London, not carried out, as a similar instance of planning a city on a regular system; the Wren plan is given as one of the illustrations. The leading feature in L'Enfant's plan was the position of the Congress House at the end of a long avenue or mall running east and west, and the position of the President's residence at one end of a cross avenue running north and south. This idea still forms the backbone of the scheme. Originally an equestrian statue of Washington was to have stood at the intersecting point of the axes of the two avenues. Considering what American sculpture was then, and what were the general ideas, in England as well as in the States, as to the style of public monuments of this kind, Mr. Olmsted was quite right in thinking that they had been fortunate in getting rid of it and in having a great obelisk erected instead. An obelisk, if somewhat unmeaning, at all events cannot present anything to offend the taste. Unfortunately, by this time the main intention of L'Enfant's scheme had been forgotten or overlooked, and instead of being placed axially with the centre of the Congress House and the Residence, it was placed "on the most convenient hillock of hard ground, some 370 feet out of line in one direction and 125 feet in the other." This mistake, which appears to have arisen from the absence at the time of any vista to direct attention to the importance of the Congress House, forms one of the difficulties in dealing with the scheme at the present moment. But much worse was behind; for the whole idea of the central avenue was forgotten; buildings were erected on part of the land intended for the avenue, and a railway allowed to be run across it at right angles, and subsequently, in consequence of difficulties in regard to gradient, a grant was even made to the Pennsylvania Railway Company for the erection of a large viaduct across the site, along with a train shed. There would evidently have been a difficulty in getting out of this; but the railway company acted in a patriotic spirit, came to the conclusion that they ought not to interfere with a scheme of national importance, and waived their right on condition of another site being found for their train-shed.

What is now proposed is gradually to remove the buildings which had been allowed to encroach on the avenue space, to clear out the avenue line and plant it on each side with four rows of American elms, with a broad greensward between them. The Capitol forming the termination of one end of the vista, the avenue is to be continued in the opposite direction, beyond the crossing, and to be closed at the other end by a memorial building which will either be, or will form an *encadrement* to, a monument to Lincoln—the only memorial considered to be suitable to rank with the Washington monument and the Capitol; an opinion in which most Englishmen, we think, will concur.

The difficulty in regard to the position of the Washington obelisk has been met in this way : the long arm of the avenue stretching to the Capitol is to be set out of the right angle with the building sufficiently to meet the obelisk exactly at the other end. The avenue will be so long that the discrepancy in angle will hardly be noticeable in execution, though it is visible on plan. In regard to the cross axis running up to the White House, nothing can be done with the obelisk, as it is too far out of line. No other important monument could be placed at the crossing which would not clash with the obelisk, so it has been decided to emphasise the crossing not by an object, but by a space, by making

* Proceedings of the Thirty-sixth Annual Convention of the American Institute of Architects, held at Washington, December 11, 12, and 13, 1902. Gibson Bros., Washington, U.S.A. 1903.

it the site of a slightly sunk ornamental garden.

The whole scheme is a grand one, and though it may be years before it can be carried out, Mr. Olmsted said he hoped the design would at least, as he expressed it, be sketched out upon the ground without delay, and that "as it materialises, the American people will realise the truly magnificent ideas of the founders of the city," and will be ready to see money freely spent to make the Government buildings and their surroundings contribute to a great artistic whole.

An eloquent commentary on the scheme is furnished by a photograph of the Washington monument in its present surroundings, rising from behind groups of low and irregular trees with some small and mean-looking buildings interspersed, and with a foreground of marshy waste land. A plan of the "monument garden" as projected—the garden which will occupy the centre of the crossing—is given, showing the monument at one end of it, and a perspective view from a drawing showing the grouping as proposed.

Whenever this great scheme is completed, it will furnish something worth crossing the Atlantic to see.

Among various other papers contained in the volume, the short report of the Committee on Competitions is of some interest, as it deals with a subject which affects architects all over the world, without distinction of nationality. There appears to have been a Committee appointed to advise on competitions when appealed to, but not to interfere unless appealed to. In their general remarks the Committee observe that the most important condition in any competition, far more important than any question of payment to competitors, is the employment of professional service both for the programme and the award. "No competition may rightly be called improper if it is fairly stated and fairly judged," and they mention competitions into which first-rate men entered, though there were no premiums beyond the selection of one competitor for the work, because the conditions were such as inspired absolute confidence. That indeed is the crux of the whole matter. The Committee support the principle of limited and select competitions, where all competitors are paid, as against open competitions; but though we agree with this in regard to private works and works on a moderate scale, there are occasions of national interest in which an open (sketch) competition is to be preferred. The selection only of known men on such an occasion may deprive the nation of the services of a man of genius who only wants an opportunity to show his powers, and who may find this opportunity in an open competition, and in that way alone. The Report refers with approval to the system partly adopted in the Liverpool Cathedral Competition, of selecting competitors on the basis of illustrations of their previously executed work; and for a limited competition this is a very good plan; but then it should be carried out consistently and entirely. The mistake at Liverpool was that the competitors were allowed the option of either sending illustrations of executed work or designs prepared for the site. There was thus no true basis for comparison.

NOTES.

Position of the Organ in Churches. At the Church Congress Sir Walter Parratt read a piquant and in some respects rather reactionary paper on church music and the relation between choir and congregation. Into the purely musical aspect of the subject we cannot go here, beyond saying that while admitting the justice and point of some of Sir Walter Parratt's remarks (as reported), we cannot agree with them all, an dwe thought his ideas as to the possibilities of church music, and the part which the congregation might take in it, represented by no means a counsel of perfection, and that much more might be done in enabling and encouraging congregations to take an intelligent part in the musical portion of the service than he seemed to contemplate as possible. But we are glad to see that he made some excellent and most sound remarks as to the position of the organ and the choir in churches. Congregational singing, he said, would be facilitated if the choir were near enough to afford support, but in too many cases they were placed in a narrow chancel whence the sound emerged very imperfectly. Then the organ was often very badly placed in a hole on the north side of the chancel (we do not know why he said the "north," as organ-chambers are often found on the south side also). The old west-end position was unquestionably the best for the organ, and the choir should be ranged halfway up the nave. We are entirely in agreement with these suggestions, which we may remind our readers are similar to those made by the joint committee of the Institute of Architects and the College of Organists, which considered and reported on the subject a good many years ago, but (so far) without much practical result.

Blackwell's Island Bridge, New York. Twenty years have elapsed since the proposal was first made to construct a bridge across the East River at Blackwell's Island, but it was not until last month that the scheme took a finally definite shape in the plans and specifications for the superstructure, issued by the Commissioner of Bridges. This structure will be the fourth bridge connecting New York with the Brooklyn side of the river, and it is to be of the cantilever type. Permission to build a bridge on the site was granted to a private individual in the year 1884, but the plans were not submitted before 1898 for approval by the authorities. Work was started on the piers in 1901, but progressed so slowly that in 1902 the value of completed work was not more than 8,500*l*. The plans as now revised embody the following features: a shore span of 469 ft. 6 in. on the Manhattan side; a river span of 1,182 ft.; a centre span of 630 ft. across the island; a river span of 984 ft. over the east channel; and a shore span of 459 ft. on Long Island. Practically, therefore, there will be two cantilever bridges in series. A system of lifts and stairways is to be introduced, giving access to Blackwell's Island. The bridge will be double-decked throughout, affording space on the upper floor for two elevated railway tracks and two footwalks each 11 ft. wide, and on the lower floor for four railway tracks, two for overhead trolley cars, and two for the "underground" cars. In addition, the lower floor will have a 36-ft. roadway for horsed vehicles. The steel towers are to consist of massive legs of box section, spaced 93 ft. centre to centre, connected with deep latticed trusses, and other bracing. Nickel steel eye-bars, forming the main tension members, constitute a noteworthy feature of the bridge, the tests demanding an ultimate strength of 90,000 lb. per square inch. In addition to its own dead load, the bridge is designed to carry live loads of 6,300 lb. per linear foot, as ordinary traffic; and 12,600 lb., as congested traffic. The total length of the structure will be 7,636 ft., including the approaches.

The Connel Ferry Bridge. This structure, which has recently been inspected by Colonel Yorke, is one of the largest cantilever bridges in Europe, being in fact, second only to the Forth Bridge. It consists of two steel cantilevers, supported on granite piers, with an intermediate span, forming with the two cantilever arms a clear span of 500 ft. over an arm of the sea. The clear headway above high-water level is 52 ft., and the balance arms of the cantilevers are 105 ft. long. The tops of the cantilevers are 120 ft. above high-water level, and the bridge is approached at each end by a granite viaduct. Nine Caledonian railway engines and four 30-ton waggons were formed into a train for the purpose of the official test, the total load being about 1,000 tons. The new bridge, which has been erected under the superintendence of Mr. E. Cruttwell, as consulting engineer, is on the Ballachulish extension of the Callander and Oban Railway. No doubt the new structure will be found most useful for the purpose intended, but it will never be beautiful. It is said that the necessity for maintaining a navigable waterway, the depth of water, and the strength of the tide suggested the type of construction adopted. We feel sure, however, that it would be quite possible to suggest a more pleasing example of the type in question.

Asphalt Block Paving. A somewhat novel form of asphalt paving, laid in one of the streets of Magdeburg two years ago, appears to be giving satisfactory results. The foundation consists of concrete blocks about 10 in. square by 6 in. thick, the joints being filled with sand. On the surface of this foundation a thin layer of sand and a ¾-in. coating of mortar were spread, to form a bedding for the surface course of asphalt. The latter course was applied in the form of blocks, about 10 in. square by 2½ in. thick, about ¾ in. of each block at the lower part being of cement mortar, and the remainder of asphalt mastic. After being bedded in the layer of mortar covering the foundation, the blocks were jointed with neat cement grout. It appears that the concrete-block foundation was adopted because it was thought the formation of a continuous foundation would interfere with traffic for too long a time. One advantageous feature of the system is that the street can be opened very readily for giving access to pipes and other conduits. Most of the blocks taken up can be used again, and

after restoration the surface shows little or no sign that it has been disturbed. The municipal authorities propose to extend the system to other narrow streets in the city, being now practically satisfied as to its general suitability for such thoroughfares.

Architecture in Novels.

In Mr. Quiller-Couch's spirited story, "The Adventures of Harry Revel," one of the earliest incidents in the hero's life is that, when a small boy, he escaped from the gallery in a church during service, went up the tower stairs, and climbed up an angle of the spire by the stone crocketts, but found he could not climb down again that way. His *modus operandi* was to hang on by the base of the finial, between the angles, and with his feet to kick a hole though the slates until he got the rafters laid bare; then to slip down and hang on to the woodwork and kick more slates through below, and so on till he made his way down to the base of the spire. It is hardly surprising, in any case, that the churchwarden should have remarked, after hearing of the operation, that he always suspected the contractor had treated them unfairly in the matter of slates. But if Mr. Quiller-Couch had had a little more acquaintance with modern architectural history and with building construction, he would have known that the circumstances were impossible in any case. The church is specially referred to as one "recently built." The time is in the first years of the XIXth century, somewhere about 1805, as the hero was, some few years afterwards, at the assault of Ciudad Rodrigo. It would puzzle the author, we should think, to find an example of a church built at that date with an octagonal crocketted spire. It would puzzle him still more to find a spire built with stone crocketted courses up the angles and filled in between with timber and light slating. A little general knowledge on these matters is advisable before authors work architectural structure into their stories.

Society of Oil Painters.

We fear it cannot be said that the present Exhibition of the Society of Oil Painters, at the Gallery in Piccadilly, is of very high interest as a whole. It contains, of course, some good pictures, but the proportion of mediocre and uninteresting work is very large. The President, Mr. Frank Walton, contributes three landscapes, of which the most important, "Townhurst Woods" (148) is a fine example of delicate and conscientious landscape-painting, by an artist who has a style and feeling quite his own. Of his two small landscapes, 251 and 253, with quotations for titles, the latter is noticeable for the charming manner in which the fore ground, with its spots of colour from the field flowers, is touched in. Mr. Melton Fisher's three exhibits are little more than sketches; and Mr. Lavery's "Summer" (198), a view over a sunlit sea with two figures in the foreground, has also the characteristics of a landscape sketch on a large scale, somewhat crude in effect. Sir J. D. Linton gives us for once a large figure-picture of the kind which he used frequently to paint—"The Casket Scene from the 'Merchant of Venice'" (66) at the moment when Bassanio is making his choice; it is fine in colour but rather devoid of character, though the figure of Portia is interesting and dignified. Mr. Leslie Thomson's "Summer" (34) is a kind of decorative panel of sea and sky, divided across by a horizontal bar of yellow sand and nude bathing figures on a small scale; a good piece of colour and decorative suggestion. Miss Fortescue Brickdale's picture, (16), with a quotation from Browning's "Rabbi ben Ezra" as title, is fine in execution but does not seem to rise to the spirit of the quotation; it is more like a cynical comment on the poet's words. Mr. Montague Smythe's "On the Norfolk Dunes" (118) is a melancholy seaside idyll rather in the feeling of Israels, but with a different and more delicate manner. Mr. Wetherbee illustrates "Dawn at the Gate" (123) by a figure of a fair farm-girl at the gate of the yard; a better work, and more in his own manner, is "The Golden Horn" (175), a pastoral with a rising moon. Mr. Davidson's "Corporal Trim Reading the Sermon" (186) hardly realises Stern's characters. Mr. Frank Dadd's "The Morning After" (168), a duel scene on the sands in the last century, is chiefly valuable for the dramatic contrast in the personality of the two antagonists; it is rather dead in colour. Mr. T. Graham's life-size study of a blonde rustic girl certainly answers to the title "My Father's a Farmer" (284), and is in that characteristic sense a success. Among other works in which figures are combined with landscape, one of the best is Mr. Charles Sims's "Sunshine and Wind"; we may mention also Mr. Coutts Michie's "Home from Pasture" (153) and Mr. Jacomb-Hood's "The Little Swineherd" (314). Mr. Kennington's "Flora" (75) is a brilliant study of half-length of a girl in tulle and backed by a mass of flowers, but the face is uninteresting. Among the landscapes is a large and fine view of "Durham" (98) from the railway, by Sir George Reid; an important and carefully finished painting by Mr. Fulleylove of "Jerusalem" (239) supposed to be taken from the traditional spot on the Mount of Olives where Christ wept over Jerusalem"; "A Norman Castle" (11) by Mr. D. Y. Cameron, a good composition in a conventional brown tone; Mr. Orrock's "Normanton-on-Soar" (72), a fine sky but very conventional trees (Mr. Orrock is more in his element in water-colour); and a brilliant little impressionist sketch by Mr. Moffat Lindner, "The Estuary" (95). We have mentioned a good many good works, after all, and there are some others; but the proportion to the whole number is small The extent of the wall-space is the difficulty of the Society; there is more than it can adequately fill.

The Late Mr. Brewer's Drawings.

We may remind our readers of what was mentioned in our last issue, that the drawings made by Mr. H. W. Brewer during many years back for this journal will be on view at the *Builder* Office from October 26 to November 6 (the intermediate Saturday excepted), between 12 and 3, on presentation of the visitor's address card. It was necessary to restrict somewhat the hours of exhibition, in order to avoid interfering too much with the usual business of the office.

THE ARCHITECTURAL ASSOCIATION.

The second meeting of the Architectural Association for the present session was held on Friday evening last week in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., Mr. H. T. Hare, President, in the chair.

The minutes of last meeting having been read by Mr. H. Tanner, junr., hon. secretary, and confirmed, the following gentlemen were elected members:—Messrs. A. Hordern, C. H. Simpson, E. S. Charlton, H. C. Benson, J. F. Munnings, L. W. Edmonds, Leslie W. Green, J. A. Rogers, E. C. Burrows, B. Oliver, A. E. Hunt, L. S. Sullivan, P. K. Kipps, H. R. Smale, E. F. Duncanson, J. S. Turner, F. Nash, H. B. Newbold, R. I. Jones, C. S. Kimpton, F. H. D. Brockman, C. R. Davy, L. Kesteven, T. A. D'Arcy Braddell, D. G. White, J. M. Kellett, H. M. Gundry, C. E. Hanscomb, W. E. Woodin, F. J. Park, T. Braddock, C. R. Shield, J. B. Healing, E. S. Whitney, F. T. Bush, G. R. Griffith, S. H. Collins, J. P. Scriven, J. T. Sugden, L. T. W. Simkins, C. A. Covernton, K. H. Milne, W. H. Ludlow, D. W. Clark, Percy May, J. H. Chandler, R. W. Pickering, G. D. Burgess, F. E. Mennie, W. Harvey, L. H. Read, and L. A. D. Shiner.

Appointment of Honorary Secretary.

The President said that owing to the appointment of Mr. H. P. G. Maule as headmaster of the Day School, it was necessary to appoint a new honorary secretary in his place. The Committee had nominated Mr. Louis Ambler to fill the vacancy, and unless there were any other nominations he would declare Mr. Ambler to be elected.

As there were no other nominations Mr. Ambler was declared elected, and he took his place at the table.

This election caused a vacancy on the Committee, and Mr. G. B. Carvill was elected.

The Late H. W. Brewer.

Mr. Maurice B. Adams said he thought it would be a graceful act on the part of the Association if they recorded in some way their appreciation of the work of their friend the late Mr. Brewer. Mr. Brewer was not a member of the Association, nor was he an architect, but he had contributed by his beautiful drawings much to the pleasure and advantage of architects in general, and all who knew his work must appreciate his skill and his beautiful draughtsmanship. He (the speaker) suggested that a vote of condolence be sent to Mr. Brewer's sons, one of whom had made a name for himself as a decorative artist, expressing to them in some appropriate way the sincere appreciation of the Association of Mr. Brewer's work. Mr. Brewer's drawings were principally of a pictorial character, but they always displayed an appreciation of architecture from a technical point of view that was often wanting in pictorial work of this kind. Mr. Brewer's illustrations in the *Builder* had always been to him (the speaker) a great source of satisfaction and pleasure, and he thought it would be appropriate to send the letter he suggested.

Mr. W. A. Forsyth seconded the motion.

The President said he thought it was a very appropriate course to take. Mr. Brewer was quite alone in this particular line of work, and all architects must have appreciated his drawings which had appeared from time to time in the *Builder*.

Mr. Adams' motion was then agreed to.

New Premises Fund.

The Chairman said he had a very pleasing announcement to make, and that was that the Royal Institute of British Architects had promised a contribution of 500*l.* towards the New Premises Fund. This was a donation which he was sure they would all appreciate, not only because of the actual monetary value of the contribution, which was considerable, but more particularly because it showed the sympathy which the Institute had for the work of the Association and the way in which it regarded them. He had much pleasure in proposing a hearty vote of thanks to the Royal Institute of British Architects for their handsome donation towards the New Premises Fund.

The motion was heartily agreed to, and the Chairman further announced the following additional donations, *i.e.*, Messrs. Alexander Graham, 20*l.*; J. S. Gibson, 10*l.* 10s.; W. G. B. Lewis (second donation), 2*l.* 2s.; P. W. Lovell,

2l 2s.; and J. H. Squire (second donation), 2l. 2s.

A vote of thanks having been accorded to the donors,

It was announced that the Modelling Class would commence on November 5, the instructor being, as before, Mr. F. W. Pomeroy.

A vote of thanks was accorded, on the motion of the Chairman, to the British Fire Prevention Committee for arranging for a party of members to visit the International Fire Exhibition on October 7. The visit was much appreciated by those who were present.

The Day School.

The Chairman then called on Mr. A. T. Bolton, late Headmaster of the Day School, to read the following paper on "Day School Teaching in Relation to Architectural Pupilage":—

Mr. President, Ladies, and Gentlemen,—It is my pleasant duty this evening to appear before you to render an account of my stewardship as organiser of the Architectural Association Day School during the past two years, and it is particularly gratifying to me that my friend and successor, Mr. Hugh P. G. Maule, has allowed his name to be associated with our subject to-night. You will not, I am sure, expect from him upon his entrance on his new task, the more definite views that he will be better able to give you later on when his turn comes to attend this audit; nor will you naturally assume that in every respect he endorses such conclusions and suggestions that I may feel bound to bring before you as the outcome of my own experiences.

The idea of establishing a Day School had for a number of years been contemplated by the Architectural Association, and the chief hindrance was, I think, the idea that such a school would destroy the long-established and well-tried system of architectural pupilage. Fortunately, it has been proved that this particular danger had been exaggerated, and it has been found possible, thanks to the loyal concurrence of the profession, to work the school as a preparation, rather than as a substitute.

The architectural profession has been fortunate in retaining the old traditional system of pupilage, during a period of changes and reforms, until the reaction has set in, so that it is now possible for us to develop rather than to destroy a method of training which, rightly understood and carried out, is still best adapted to a profession like our own.

It is generally agreed that a boy from school entering an office direct is seriously handicapped, and runs a great risk of losing the years of his articles owing to his inability to pick up work of so unfamiliar a character to his previous training.

The Day School is not only the pupils' charter, but is also an immense relief to the mind of the conscientious architect. The number of pupils sent to us at the Architectural Association Day School by the profession is conclusive on this point.

Now, what shall we say about the raw material as we receive it from the public school? Everyone knows the truth on this matter, the correspondence in the Press, is on a par with that directed from time to time against the great railways, and the attitude of the head masters would seem to approximate to that of the railway magnates. I do not propose on the strength of my own experiences to join in the chorus, but if I had a confidential five minutes with one of them, I should ask what is this vicious circle in which you are revolving? Your case appears to be that the public schools are waiting for the Universities, while the latter allege that they cannot move on your particular account.

Is not this all very much beside the mark? What are the statistics of public school boys who go to the University? and what are the responsibilities of the schools to those whom they launch into life ill prepared for their future work? For years the public schools have been drawing on their great asset, the right instinct that determines the parent to send his son to one of these great schools, for the sake of the development of that standard of character which will mean so much hereafter in his life. Those present saw, doubtless, Lord Cromer's striking message to the public on this point.

But, giving such considerations due value, are the schools right in supposing that they can for ever defy the competition of the best Continental training, and of new institutions growing up on similar lines? Imagine the usual reply, "look at my modern side," but ask a public school boy why he did effect a transfer. It is as if you wanted to know why he did not forthwith become a pariah. In pre-Colenso days we might have had a reference to "my Army class." Now I am afraid we are coming to "my preliminary Royal Institute of British Architects' Examination Class." This last is a frightful outcome of our pet mania, we are classing ourselves with China as the two examining nations.

It has occurred to some to wonder when it will be common knowledge that our primary schools work no longer under examination but through inspection, to the immense relief of the teacher, and the great benefit of the scholar.

It is apparently a crime like that of Oliver in asking for more, to suggest that a certain architectural school might recruit itself by a similar method.

The cause of public school deficiencies lies fairly deep. The remedy is known, but it is the will to apply it that is lacking. We have had our lesson, but Africa is a long way off, and the real strain has perhaps not yet come sufficiently home to our own shores.

To justify such views it will be necessary to consider in brief outline the ideal of education which we have in our minds, and to try and arrive at certain deductions from experience and observation which may guide us in a problem of such complexity as education.

In the first place, let us start with the principle that education is not the acquisition of certain definite information, but the training of the mind to meet contingencies that can never be accurately foreseen.

In the clear meaning of the term it is the leading out or development of the powers of the mind, combined to some extent with a correcting and supplementing of native qualities.

I am afraid this last limitation may not satisfy some enthusiastic teacher engaged in the most thankless of educational enterprises, that of instilling refinement in a mind of an incurably base type. May the teacher gain by the effort!

What, now, is the ultimate object of education? I should start by saying that man, of himself, in relation to his surroundings, is deprived of power, in other words, ignorant, if you will, over and in all the great eventful facts of his existence. This common fate is made more tolerable to us by its recurrence and universality, and the important part played by education in life, mentally considered, is that of giving us the support of the great minds that, thinking on these things, have endowed us with the accumulated wisdom of the race.

I take this to be the essential justification of classical, using the word in the widest sense, training, and an adequate defence of the study of the great literature of the past.

Unfortunately, this view of the essentially practical character of such studies is constantly obscured by the pedantry of that scholarship which concerns itself, not with the wider bearing of the subject studied, but with the minute facts of the workmanship of the casket in which the jewel lies hid.

No one for certain, pursuing a study that rises to the level of an art, would for a moment depreciate points of form, or understate the power of verbal felicity of expression, but it is idle to deny that, under an over-zealous pursuit of scholastic and grammatical points, the wider bearings of the subject are too commonly wholly lost, and never reaches the mind of the student, so as to influence his thoughts.

The study of the classics under such unfortunate auspices is made, not only repulsive, but also so unpractical that even people of some education will be found to condemn it as wholly useless.

From this arises the curious distinction, drawn by so many people, between theoretical and practical learning, whereas, in reality, no such distinction can exist in true education.

The ideal of education is simply the development of mental power. The true educated man is not necessarily a product of University training, nor even as a matter of course a student of wide reading in books.

This is a perpetual stumbling-block to many worthy people who confound the means with the end, and fail to realise by how many paths the goal of a well-developed and rightly-ordered mind may be reached. "Small Latin hadst thou, and less Greek," is the astonished exclamation of the scholar poet to the master he hailed as one grounded in Nature's own school.

There is a striking passage in a great French writer, in which he points to discussions in the tents of the Bedouin as originating Oriental philosophy, and as the equivalents of our Universities. You are doubtless aware that the Greek philosophers educated by means of conversational discussion. An acquaintance with their methods is an aid in grasping the characteristics of Greek art.

The bearing of these remarks lies in this, that the accumulation of facts is of itself of no value whatever unless it is accompanied by a simultaneous development of the reasoning powers, nor is the study of grammatical niceties essential to a comprehension of a great literature or art.

We must not, in fact, reverse the natural order of the acquisition of knowledge. Observe the process of a child's mental development. It is in essence a perfect specimen of the Socratic dialogue. The child's interest is first aroused, then comes the question, and following swiftly on the reply his more or less logical deduction, ending possibly in a perfect dilemma for the unfortunate parent, who is often driven to resort to the common form of nursery closure in order to end the discussion.

It is a mystery to me that so many teachers ignore this natural method. Students are drawn up blank against some concentrated essence, mainly grammatical, of a subject, and expected to develop an interest in the dry and often useless facts of which they utterly fail to grasp the bearing.

The customary excuse is that of the importance of accuracy, which, however, is to be taught of itself, and probably can be far better inculcated through the verifications of experinental science than by literary and grammatical means.

Let us now apply these principles to architectural education. In the first place it will follow that neither Gothic nor Classic art of themselves are wholly necessary to salvation, and that the mere Examination Facts, as I will call them, are not of themselves of any value whatever.

What we shall need will be to give our beginner a good general survey of the historical development of architecture treated in relation to the character and conditions of the people and countries where it originated, utilising for this purpose the method of the contrast of opposites and its contrary of imitative resemblance.

This survey should lead to the apprehension of certain central facts, the unity of all architectural expression in spite of its diversity, the possession of common qualities, and the permanence of artistic expression.

When a student reaches the point that he can, as it were, make a summary division into two styles, the plain and the ornamental, has learnt that there is no monopoly in beauty, and realises that proportion, grace, character, and fitness are all parts of one whole, then he has begun to justify his education, and has entered upon a path presenting possibilities of progressive growth.

A stumbling-block for the young student is that presented in the right relation of Art to Nature, more especially in architecture. When told "to study Nature" in the common phrase, the impression most probably produced on his mind is either one of mere bewilderment, or else a confusion of the imitation of concrete form with the outcome of deductions from an observation of natural facts, directed towards the apprehension of abstract qualities, capable of illustration in architecture.

Take the commonest fancy of the amateur, that the nave of a Gothic cathedral is a copy of a grove of trees, and compare with this Darwin's suggestion that the awe which we feel on entering a grand building finds its origin in the effect produced on early man by the caverns and forests in Nature. The fallacy of the grove of trees strikes you at once as too gross for discussion, but the underlying idea is always cropping up in changing forms. Its plausibility depends on the fact of a certain coincidence of result in the works of man, reached through a long series of logical developments, with the seemingly irresponsible work of Nature. An instance given in Garbett's "Principles of Design" is the relation between the elephant's foot, the human hand when raised to uphold a weight, and the highly-developed Doric column. Similarly in Gothic architecture, in certain phases of its fullest expression, an analogy may be felt between the intricate clustering of relief and open work, and the tree tracery of the woods in winter.

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In Renaissance work quite recently an attempt was made to base a theory on forms coincident with Nature's spirals as seen in shells.

The student once having found admittance to Nature's school is provided with a field of unending study. This observation and reflection on Nature is in many cases purely instinctive, and, I believe, not seldom possessed without any capacity of expression, as it will be found welling up among dwellers in the country in unexpected forms. Every Shakespeare lover knows the poet's marvellous instinct and extraordinary wealth of illustration obtained from this source. I should go so far as to fancy that the instant impression of supreme artistic creation, on all classes, derives a large part of its effect from the revelation agreeing with past subconscious observations on the part of the spectator.

Much is said of the refinement of Turner's landscape, but to the artist himself, full of the sense of Nature obtained from life in the open, his work was doubtless but a coarse transcript of infinite subtilties.

No student must rest content with a mere feeling after Nature's charm. Emotion must be translated into work, however imperfect, and the effort maintained through cloud as well as sunshine. Nature's process is infinitely slow, and artistic stature cannot be increased by taking thought any more than physical.

The student's greatest enemy is his own self-conceit. There is always a place for the patient worker; but the flashy student incapable of independent and sustained effort will always remain a burden to his teacher.

Every student is a problem in himself, and needs individual care, and the wisest teacher will be the least dogmatic in his judgment of capabilities, and the least ready to shut the door.

In this hasty and imperfect sketch, fellow students, I have tried to indicate to you the underlying spirit in which your education may be pursued. You came here, perhaps, expecting to hear about the details of the method employed in the Day School. We can all differ in that respect, and a student's own experiences will colour his personal prepossessions.

I do not propose to justify the particular means employed—I might find myself launched into biographical particulars—but the foundation requires to be sure, and the basis must be a close touch with the actualities of our own day, and a solid continuity of effort on the part of the student not afraid of hard work.

We are not entitled to set our students on a path which will make it harder than it need be for them to earn money within a reasonable period. The Day School has been run on semi-office lines, with an effort after a thorough grounding in the drawing methods in common use. We may agree that skill in draftsmanship is by no means the essential quality of an architect, but it is certainly a necessary qualification for an assistant requiring a place in an office, and we must look forward to the anxious period when, at the expiration of his articles, our Day School student has to give work-a-day proof of his powers.

While giving prominence to draftmanship, I never could myself agree to its pursuit to the detriment of the study of design, nor could I see the reason for postponing that important subject to quite a late stage in the student's career.

In the second year course of the Day School we have started the student in that important branch of his future work on very conservative lines, utilising the interest of the student in creating something, to deepen his studies of the first year, and guiding him in his first essays by the sure aid of the past examples of his art.

If you will look at the drawings in the second year, I think they will show you how interesting and practical the study of historical architecture may be made, and you will realise that for the preparation of these designs something more than a surface knowledge of the particular phases illustrated must have been acquired.

I have a particular wish to secure your support for my successor in his important task of developing the equipment of the Day School. The liberal assistance from the Committee and the general body should be forthcoming in this matter.

I am sure all the staff of the Architectural Association will hail with especial thankfulness the solution of the premises problem, which has lain across the path of the natural development of the Architectural Association for so many years.

Hurry up and pay off this debt, so that the Committee may devote themselves to the reorganising and equipment of the Schools, which should do so much for the coming generation of architects.

The Day School has doubtless been a useful piece of underpinning, but there has always seemed to me to be a top story wanting in our educational structure. A pretty good believer myself in Architectural Association methods, and fairly diligent in the classes, there came, all the same, a time when something more consecutive and thorough seemed to me to be essential. In my view, it need not have been necessary to go outside the Architectural Association for such further study.

Are our young students quite satisfied to-day, after, say, a year or two in the School of Design? And if they are now, will those who pass up from the Day School continue to find this school admirable as it is within its limits, sufficient for the completion of their training?

It is probably much better that the Architectural Association should finish its own students, affording them, on the slightest indication of the demand, the most advanced education that can be given.

Whatever the future development may be, let us hope the Architectural Association will know how to preserve its old characteristic of mutual instruction, free from the isolating effect of systems of education that separate the teachers and the taught into separate castes.

In the Day School I have seen a smile on the faces of the class when I have touched on this point, but, for myself, I sincerely state that I have learnt much from my two years' experiences, and I earnestly recommend some of our brilliant students to seriously consider whether they ought not to take their turn in our educational work.

You all know of the zeal of the late Arthur Cates, whose loss the Architectural Association has so much reason to regret. In the last conversation I had with him this was one of the points he insisted upon, urging the value of the effort to teach others to the teacher himself.

The Architectural Association ought to maintain a very large and able staff, as the numbers of students passing through the schools offers a very considerable field of selection. To those who dread captivity, we can reply that they are not asked to undergo a life sentence, and as to what they will get out of it, say all those things which are not learnt from books.

Where it is an honour to serve, understaffing need never exist, and the strain of teaching can be immensely lightened by a liberal policy in this respect.

Intercommunication and common action on the part of the teaching staff will naturally develop with reorganisation in our new home, to the great benefit of the students and the avoidance of overlapping.

In labouring on behalf of our young students, architects can find a practical solution of many divergencies. Pardon me this parting word of advice, "retain your own opinions, but do not make them an excuse for holding back from the work."

Mr. H. P. G. Maule, the new headmaster, then read the following paper on the same subject:—

Mr. President, Ladies, and Gentlemen,—It is with very great diffidence that I find myself in the position of having to say anything to you to-night on the subject of Day School Training, for the very limited experience I have had does not of itself entitle me to advance any views or opinions which I may have formed on the subject. I must ask you, therefore, to believe that it is only at the special wish of our friend, Mr. A. T. Bolton, that I venture to supplement what he has said, by emphasising a few of the points which appear to me salient features in architectural day school training. With the general outline of what he has said I most cordially agree, and I feel I do not even do him justice when I tell you that I know the difficulty of my task in carrying on the work to be light compared to his, in starting it, and that in handing it over to me every detail, every paper, was in perfect method and order.

With reference to the Architectural Association scheme it is necessary to bear two facts in mind—first, that the first year's course consists in reality of only nine months' actual work in the school, as three months are allowed for independent out-of-door study, which forms an important part of the student's training.

Secondly, that almost the most important part of the training is the second year, when the student is, in all probability, four days a week in an office and only two days a week in the school, during which time his study takes the form of directed exercises in design. This obviates the charge of mere academic teaching, as the student is brought into contact with the actual professional work of the day.

Now, the primary object of the Day School is to enable the student to acquire, during the first year, such a knowledge of architectural drawing, of history, and of construction, that, when he goes into an office as pupil, he can begin at once to take advantage of what he will there see and learn, and thus dispense with that awkward period, which most of us have experienced, of being plunged into an office with none but the vaguest idea of what to learn, or how to learn it.

There is another important feature, and that is that the organisation and method of the school training should enable a student to carry on his own education subsequently (supplemented, of course, by lectures and classes) with more directed method and application than is possible from an initial start in an office.

Now, the amount of "in-school" time available in the first year's course—namely, actually only nine months—seems to me to make it imperative that the training during that period should be on the broadest and simplest lines possible; that the training should, in fact, be mainly directed to teaching the student a method of learning. In other words, to teach him to begin to learn to draw; to begin to learn to observe; to begin to learn to think; and, above all, to endeavour to naturally fire and regulate his enthusiasm, and lead him to love his work for its own sake.

Without this latter as a resultant of the training, it is but labour lost so far as architectural training is concerned, though no doubt much useful knowledge would be gained which would always be an advantage in any work afterwards taken up.

The training, or rather the evolving, of an architect from the raw product of the public school, is a long and complicated process, and, when the shortness of the initial period, and amount of technical and constructive knowledge that is ultimately required, is taken into consideration, it seems to me self-evident that this early period should be made broad and general, and, above all, not too technical.

It must not be forgotten that, no matter what brains a student may have, nor how highly trained he may be so far as general education goes, of the special subjects of an architect's calling, whether history, construction, or elementary design, he is in almost all cases entirely ignorant.

His mind, therefore, no matter how receptive or retentive, cannot assimilate more than a certain amount of new matter, and it is assimilation and thought, and not an ill-digested assortment of facts, that really constitutes a good education.

Drawing.

The construction subject as inaugurated by Mr. Bolton seems to me the best of all methods for ensuring a simple and thorough grounding in elementary construction and materials, so long as the complete and direct relationship between materials, construction, and design is clearly kept before the student. A connexion which there is every reason to believe is sadly neglected in much of the work which now passes for architectural education.

I also attach great importance to the early, careful, and systematic drawing of simple full-size details in connexion with the construction subject, for an abbreviation, such as a set of $\frac{1}{8}$ scale drawings, cannot be properly understood—or drawn—unless the component parts, such as door and window openings, which they abbreviate, are clearly understood in detail.

In all the work done in the school, great care should be taken to ensure accuracy and clearness, and special attention should be directed to printing, and the value of clear and legible notes on working drawings and tracings.

Observation and Thought.

To an assembly of architects it is quite unnecessary to emphasise the importance of observation or the necessity for thought.

The eye sees what it is trained to see, and the eye is the greatest of all educators; the mind also develops its thinking faculty by knowing what to think about.

Unfortunately, the cultivation of observation does not apparently form part of an English

school curriculum, and though most little children are very observant, the habit is generally crushed out of them long before they have arrived at an age when observation, and correct deduction from that observation, complement one another.

To reawaken the lost habit, if, unfortunately, lost it is, should be one of the great aims of the training, and this awakening of observation, directed as it is, will surely bring with it the development of thought.

Organised, logical thought, the thought that will eventually enable a man to design with beauty and build with truth, because he sees clearly and without confusion, can only come with years, but the germ can surely be planted and tended during the first year in the school.

Last, but not least,

Enthusiasm.

A famous writer once said that nothing was so catching as enthusiasm, and certainly no life work should be so capable of generating enthusiasm as the study and practice of architecture, but, if the early years of training are overburdened with dry technicalities, or with work too far in advance of fairly easy comprehension, there is grave fear of the failure to awaken this divine spark, without which the whole structure of architectural education falls to the ground.

One word more, and I will not try your patience further. It seems to me that to English students nothing but good can come through laying more emphasis upon the beauty and seemliness of our indigenous architecture of all periods.

Probably no country in the world is at the present time so full of simple, strong, and vigorous living work, impregnated with the character of its people, climate, and materials.

The individuality of each designer will be a process of evolution, as is he himself, and though this individuality must not be forgotten from the very first, it can scarcely be much developed at an early stage; but the gradual evolution of architectural forms, instinct with the character of the country and the people who produced them, can be insisted upon, and surely we in England are fortunate, not only in the examples which the past has bequeathed to us so abundantly, but also in much that the present is even now giving us in many directions.

It seems to me, therefore, that elementary English architectural education such as this should be directed with this object in view, and that observation, thought, and enthusiasm can be best cultivated at the early stage by special direction towards English work, character and materials, for surely the interest of each student is more likely to be awakened, quickened, and developed by more detailed knowledge of those things which are already dimly familiar to him than by those which, for the present at least, are probably beyond his reach.

In conclusion, I can only say I hope I have not dogmatised, or lost sight of the fact that my very limited experience hardly even entitles me to put before you what I personally conceive to be some of the essential features of that primary architectural education which I believe all members of our Association have so earnestly at heart.

Mr. Maurice B. Adams, in proposing a vote of thanks, said he was not sure that it would not be better if no one said anything at all, because they had already had put before them so much that was admirable, and if they could but digest what they had heard it would effect more than any casual remarks which might follow. He was delighted with what Mr. Bolton had told them of the system carried on in the Day School—the very careful and well-thought-out scheme which had been carried on in this, the initial, stage of what they had put their hand to, *i.e.*, a definite and more systematic way of bringing young men into the architectural profession. The scheme seemed to be, so far, thoroughly complete and eminently practical, and when he looked back to the days of his pupilage, and realised what students at that time had to do, he recognised what an immense stride education had made. Now, there were architects on every hand who were not only qualified themselves to take pupils, but in taking them they realised and did their duty towards them. Moreover, students were constantly having it dinned in their ears what the Association was doing to bring about a better state of things. The new departure which appeared to him to be made by the Association was that before a young man was articled he could go to the Day School and ascertain in a tentative way if architecture was the kind of work which would be congenial to him. Now, that was a great step in advance, for a boy's father or guardian need not commit himself or the boy until he found out whether architecture was the best pursuit for that lad, and whether he had the necessary capabilities to enable him to carry it on with credit to himself and satisfaction to others. That was a great advantage, for there were still some wretched advertisements touting for pupils, even in remote parts of the country where there could be no proper means of educating boys in architecture, and people fell into these traps and sent their lads to such places, and goodness only knew what became of them in the future. That the Association was teaching students in an efficient way would gradually become known, and the public would gradually get to know that there was a better way now of teaching architectural students than used to prevail. He was extremely gratified that this very practical step had been taken to enable a student to realise whether he was fit for the work before him. He had had intending pupils brought to him, but he had never taken a pupil, because he felt the responsibility of doing so was too serious. What usually induced a parent to put his son to architecture was the taste the boy possibly might show for drawing; but the drawings that such youths did were usually prepared in some art school, and showed that the lad had little notion of the things he drew. Such a boy was often put into an office for a month or so to see if he liked the work, but beyond becoming acquainted with the other fellows there, the opportunity thus afforded was not sufficient to enable him to ascertain whether he liked architectural work or not. At the Day School of the Association a student worked for a year, and probably he would get to feel some enthusiasm for his work—an enthusiasm which would probably never have been acquired in an office, for there, too often, he was made to copy letters, make tracings, or copy drawings, and even to run errands. In the Association School the student's time was profitably occupied. Architects could not be manufactured, but no better way, he thought, could be devised for producing them than that practised in the Day School. He was entirely in agreement with the idea of not departing from the old system, which he remembered so well, *i.e.*, that of mutual instruction. It was a grand idea to get young men to teach young men. Old teachers, as "heavy fathers," were apt to crush the enthusiasm of aspiring students, and young men who had not long been engaged in practice, and who were nearer the ages of the students, were generally the men best able to produce the best results. Mr. Bolton spoke in rather a disparaging way of the manner in which young people were not taught to observe in ordinary schools. He thought that the lecturer hardly did justice to the high-school system, and particularly the system which started with kindergarten work. There the child was taught to observe and handle things and ask questions, and the system thus begun was an admirable one. In his student days boys had to learn a lot of hard facts and dry points, and their education was more or less a system of cram. Now it was quite different, for the student was taught to observe and enquire, so that he rather thought Mr. Bolton had done a slight injustice to the better system of teaching young people to realise and think. In the future of the Day School there would be an extraordinary development, of which we had but little conception at the present time. If they went on in the manner they had commenced, and under the enthusiastic auspices of so many old friends of the Association, he was sure they would be proceeding in the right direction, and produce results which would even surpass their present expectations.

Mr. A. M. Watson, in seconding the vote of thanks, said he had expected some of the older men to be present to defend the system of office pupilage as against the school system which had been inaugurated by the Association. When one compared the work done by the Day School students in the first year with work which a pupil did in the same time in an office, one saw that the office system was not in it. A man who had had any experience of office work would hardly think it possible for pupils to be producing this kind of work unless the master had next to no practice. If he had any practice the student was generally engaged in helping him in his office work, and there was no opportunity of preparing such studies as one saw round the walls that evening. He had had the privilege in the Evening School of the Association of coming into contact with some of the Day School students in their second year, and he had observed that they were in a very healthy state of curiosity, and that was a great thing, because a man could not have curiosity about a subject unless he was interested in it. If a man were not interested in a subject he would not be curious about it, and so he came to the conclusion that the Day School was carrying on the traditions of the founders of the Architectural Association classes, and that was that the line between teachers and taught, if marked at all, was very indistinctly marked. All were engaged in research and exploration, and the best teacher was himself learning and the best student was teaching; and if there was any difference between teacher and student it was this, *i.e.*, the teacher was exploring just a little bit further ahead than the best student in his class, and perhaps a good deal further ahead than the youngest and dullest student; but because he was far ahead of the dullest and youngest student, he must not deprive that student of the pleasure of thinking out things for himself, and he should take the student deliberately through the country he himself had already explored—should put the student in the way of satisfying his own curiosity, so that the student should have the satisfaction of finding out for himself the solution of the problem his mind was at work on. Mr. Bolton had alluded to the possible lacking of a top story in the scheme of the Association, and he (the speaker) took him to mean a story in which the budding architectural genius, the future Sir Christopher Wren, should be provided for. It seemed to him that that provision was at hand if members of the profession would only co-operate with teachers. Wren himself, when he was past thirty years of age, attended an architectural day school; and he called it, in a letter about it, "a school of architecture, the best probably at this day in Europe." Those words were written in the year 1665, and that school was the scaffolding which surrounded the buildings of the Louvre in Paris, where Wren said that he spent days and weeks "prying into trades and arts." It seemed to him (the speaker) that we have the making of such a school in London. Some of the members of the Association were carrying out large buildings, and those buildings were often fine places for students to go to in the day time and see how men worked and how buildings were put together and constructed. Of course, the Association did something of the kind now, but they had only been able to visit buildings on Saturday afternoons, when workmen were not carrying on work, and it would be a good thing if architects would put in an additional clause in their contracts to the effect that notice of the work should be given not only to the District Surveyor and the local authorities, but also to the staff of the Architectural Association, so that the students in the school should be able to study the building on certain days in the week. He did not think that students would be found to be in the way, and if members of the Association who were directing building operations in London would co-operate in this way, it would result in the Day School becoming unique, for no other school in London could then compare with it.

Mr. G. H. Jenkins said they must all be grateful to Messrs. Bolton and Maule for their explanation, but he might ask whether they were satisfied with the educational scheme now started. Was it really the best that could be obtained? They knew that in Germany there was a four-years' course in a technical school which was much larger than any school we had in England. That school took the student from the finish of his general education to the time when he could enter upon a practice of his own. That was only possible after a scholar had had a perfectly sound secondary education, and it appeared to him that one point in which the Association Day School curriculum was lacking was the fact that there was no test at the commencement as to whether the student was grounded in such items of secondary education as all ought to possess who wanted to become architects. Would it not be well if there were an examination held to discover if the student had a general knowledge of geometry and the other subjects which it was necessary that he should

know before he started to set out the "Orders," and to take up other subjects which the Day School taught? No doubt the system was a good one, but when we saw that the student was taken in one year through the whole history of architecture, through the whole of building construction, and in the second year devoted himself principally to design, one wondered whether the knowledge acquired by the student was sufficient to justify the course which had been pursued. Was not the student attempting too much? He knew a Day School pupil, and he was sorry to say that he did not find that student's knowledge was of the depth and profundity which one might have expected. The student did not seem to be acquainted with that general knowledge with which he ought to be possessed. It seemed necessary to have a course which would be longer and more sustained, so that the students would have some opportunity of acquiring a general knowledge of his profession. One hoped that the Association would in time be able to add another year to the course of training, so that the student at the commencement would spend more time on the elementary subjects. He did not see how the student could expect to learn freehand, elementary perspective, drawing from models and casts, elementary construction, history of architecture and other subjects in one year, and he hoped they did not look upon the Day School as the best that could be done, especially seeing what was being carried out in Germany and America. He hoped they looked upon it as an initial idea, which would be developed as years went on in a more thorough school of architecture than was possessed at present.

Mr. Max Clarke said he spent nearly all his pupilage time in sticking photographs into a large volume. In reference to what the last speaker had said, it did not seem to make much difference whether a boy started by learning geometry, or how to draw out the orders, if he had made up his mind to become an architect and had a sufficient amount of brains. Of course, without that initial determination, a young man might just as well never begin at all, for preparation for the work was a fearful labour at any time, and the ability to draw was but a trifle compared to what a student had to learn. The chief assistant in the office in which he was as a pupil, told him that one had to pay for all the information one got, but in those days there were not many ways of getting knowledge even by paying for it; a student had to find things out for himself. Now, of course, students were far better off in that respect. He did not think it was instilled into a student sufficiently that in addition to being an architect it was most desirable that he should be a gentleman. They had heard something about architectural traps. Such a thing should not be possible, and an architect should never be guilty of setting an architectural trap for either clients, opponents, or pupils, and that was a point he wished to emphasise. If a man were not a gentleman he would never be a good architect; he might be able to draw, but he would never be able to conduct the multifarious duties which an architect had to deal with unless he was absolutely upright and straightforward; and that should be inculcated at the school as much as the importance of such matters as learning to draw. Recently he met a young man who had been drawing a door, at an institution where young men were taught building construction, etc., and when he questioned that student about what he had been drawing, the young man showed a complete ignorance about the subject. Again, at some baths recently, he saw from his room, through the panels of the door, the people walking along the passage. He then found that the panels in places had not been rebated into the stiles and rails, and were about ¾ in. short of them, and were fixed on to the mouldings, and the mouldings on to the stiles and rails. He could only conclude that the work had been carried out in the office employing the above-mentioned student. Mr. Bolton and Mr. Maule were doing their best to educate present-day students, and if the system was not the best, time would soon produce something better. In any case, it was only fair to give it a trial. If students chose to work, they now had advantages which had never before been offered them in this country.

The President said he was sure they would all agree that the papers which Messrs. Bolton and Maule had given them were of the very greatest interest. Mr. Bolton's review or explanation of the course through which the students were taken was extremely interesting, and confirmed one's previous admiration of the way in which Mr. Bolton initiated the course. He had very little hesitation in saying that no other member of the Association could have started the Day School on such an excellent basis as had Mr. Bolton, and no student who had gone through the course described could fail to have gained a very great amount of knowledge unless he were hopelessly stupid. Now, as Mr. Jenkins said, it might be a very superficial knowledge, but he could not help thinking that that was so because it was given in a more or less superficial way, and he took it that the idea, at all events, in the present stage of the scheme, was not to make an architect at all; it was simply to give a lad a general knowledge which would enable him to educate himself afterwards and to take advantage of such education as was to be found in the office. It would be ridiculous to think that they could educate an architect in a year's course; it could not be done. It was only the means of giving a start on the right lines. There was no doubt that three-quarters of what the student heard in lectures would be forgotten, but the part which remained would be of the greatest use to him. In listening to Mr. Bolton's description of the course, he was very much interested in the method of teaching construction, which seemed to him to be a great improvement on the methods which had previously been in vogue. At the present time there were amongst them a great number of architects, and so-called authorities on education, in whose minds there was a tendency rather to magnify the study of construction out of its proper proportion. Twenty years ago, or perhaps a little more, it was rather the fashion amongst the more advanced architects of those days to minimise the value of construction altogether, and to say the study of design and the art side of architecture was the most important, and that construction was a matter for the surveyor and builder, and not for the architect. Now the pendulum seemed to have swung in the other direction, and he had heard it freely expressed that the only thing to study was construction, and that the other things could take care of themselves. Both ideas seemed to be wrong. The only proper course was the middle course—that the study of design and history and construction should go together, and in this way the student would be able to study the relative value and meaning of each side of his art. Mr. Watson made a suggestion about visits to buildings in progress. Well, of course, that was done in the Day School now to some extent, although probably not to the extent that Mr. Watson meant. He did not think there was the least difficulty in arranging visits to almost all the buildings in progress in London. The Day School was in its infancy, and was not at all fully fledged, but he looked forward to the time when the course might be—and he had little doubt in his mind that it would be—extended to three or five years. He believed the Day School was the beginning of a national school of architecture, and that it would develop into something very much larger than many people imagined. With regard to the system of pupilage, as at present instituted the Day School did not interfere seriously with the old-time system of pupilage. We were a conservative people, and were not ready to get rid of established ideas; but he could not say that there was any necessity for the retention of the pupilage system at all, and it was quite possible the day would come when there would not be such a thing, and when the education of architects would be on the lines carried out in Germany, where the student could go to the school and study for five or six years, going through a complete course and coming out to practise as a fully qualified architect, ready to undertake the work of the architect. That was looking forward far ahead, and they would have to proceed slowly; but he thought they had initiated a course of study which in future years would lead to something which would be of the greatest importance in the education of architects.

The vote of thanks was then very heartily agreed to.

Mr. A. T. Bolton, in reply, said he was rather glad that Mr. Jenkins had made the remarks he did, because that represented the point of view against which the paper was, to a large extent, directed. Mr. Jenkins had, he feared, entirely failed to understand what the object aimed at in the papers was, and their intention. The suggestion that there should be an examination of students when they entered the Day School was out of the question, for such an examination as he proposed was precisely what they wanted to avoid. In English secondary education, of course there were many things which, as his paper indicated, the public schools ought to teach but did not, and at the Day School they knew from experience the knowledge with which the students came to them, and what it was desirable they should be taught. The difficulty was to get the public schools to teach subjects which the students should know before they came to the Day School at all. Mr. Jenkins had not, apparently, understood that the object in the first year's course of this Day School was not that the student should be made well acquainted with all the elementary facts connected with architecture, but that he should be taught to get hold of the main idea of the historical development of architecture, and at the same time be given a sound training in geometrical drawing. If any architectural office in London would send round a young man who in his first year had been able to prepare such drawings as those shown that evening, and was able to answer a cross-fire of questions from the Day School men on his drawings, they would forthwith present him with a putty medal. His idea was that no office in London could produce a student who in a year was able to show such a quality and amount of work as some of the Day School students had done. A speaker had referred to the attention a pupil received in an office. How was it possible for any principal to give to his pupils the attention young men received at the Day School of the Association? In the Day School there had been three rooms, and in each room there was one assistant, with, at the most, nine or ten students. No student was checked in asking questions, and many hours were spent over each of them. As master he used to make it a point to go round and ask students questions to see whether they understood what they were drawing, a point which could easily be seen from the work itself. They did not pretend that a student was, after the course, more than prepared to profit by his articles and by the work which would be open to him in the Evening School. Mr. Jenkins, who assisted in the Evening School, apparently found that he had his duties to perform. A student from the Day School might very likely not know certain things which he ought to have known, and it was certainly Mr. Jenkins' business to teach that student those things if the student were a night-school student. Mr. Jenkins had, however, no right to complain of the Day School because of the shortcomings of the public or private schools. Possibly, if the student referred to by Mr. Jenkins came back from the Evening School to the Day School they would have no difficulty in finding cause for complaining to Mr. Jenkins.

Mr. Jenkins: The student is not in the Evening School.

Well, that did not seem to help Mr. Jenkins' case very much. Fortunately no complaints had ever before reached them; on the contrary, architects they all knew by name had expressed their satisfaction with the pupils sent to them. Architects receiving pupils might help them by seeing that their pupils attended the second year course, and by taking an interest in their doing so. It was unsatisfactory for the school where students omitted this second year work. He was acquainted with Continental methods, and he did not think that the Ecole system—which was finer than the German system—was adapted to the requirements of this country, and there were many reasons why that was so. Those of them who had read the article by a Frenchman in the *Architectural Review* would, he felt sure (and especially if they read between the lines to understand it in an everyday light), see how unsuitable the system would be for this country. His idea was that the best results were obtained by the old system of pupilage, and he found that the most satisfactory results were obtained by students in the second year who were in architects' offices. Students got in an office where work was carried on and paid for, an incentive to work and persevere, for they found that they must prove their value. A man who came from a school where a purely academic training was given, and where this incentive was absent, would, generally speaking, not do as well. The Association Day School system, with the Evening School and the office open to a student, gave

the best results, he thought. Of course, the student must work hard, and three-parts of the work of preparation for his career must be done by himself. Good as a teacher might be, the result did not rest with him so much as with the student. He was much obliged to his friend, Mr. Watson, who was one of the lecturers in the Evening School, which carried on the teaching commenced in the Day School. Mr. Watson's subject was English mediæval architecture, and he went over the ground in about three months—a length of time which they could not give to it in the Day School. He thought, however, that Mr. Watson would rather have Day School students to lecture to than students who had not had such an advantage. The students' time might, of course, be devoted in the Day School to a mere study of the four orders, and they might then know off-hand that the Parthenon had 16 or 20 flutes to a column (whichever it might be; he never remembered himself), but if at the end of his year the student went into an office where mediæval work was being done, he would be unable to appreciate the various points connected with it, whereas by the Day School method the student got sufficient general knowledge to enable him to understand the general principles of the leading phases and styles. They got, so to speak, and architectural coach-ride, and this gave them an interest in their office work. The Day School did not pretend to teach students all they should know, but they were taught enough to enable them to follow up their studies in the office and on their own account. One student did not take the same interest in Classic as he did in Gothic, but in the Day School they insisted on the study of both, and it was hoped in that way to keep a man in the future free from stupid prejudices on the subject. Twenty years ago this following of one style and deriding all but one sacred period still lingered, and was often combined with a good deal of conceited ignorance. The future Gothic man was made to realise that there was such a thing as the Doric order, and that it was not the same whether Roman or Greek. He would have liked to have had Mr. Max Clarke's young man in the Day School. That sort of thing was the result of the method of teaching generally in vogue. When students drew a door in the Day School it was not any door, but the particular door which belonged to a particular house, and the student was found to take a proportionate interest in it. They could go and see the door, they had the full sizes of it, and there were models of parts of door framing as well. That was the same with windows and other parts of a building. It was lamentable that the public schools sent out men whose intelligence was not awake, and in the Day School they had had to awaken it. If the public schools after seven years sent out young men who knew nothing about geometry, the Day School could not help it, and they could not teach physics, mechanics, and chemistry, the elements of a knowledge of which a student ought to have acquired at the public schools. If the student were deficient in these matters the admirable lectures in the Evening School were open to him, and he must make up his deficiencies there. He was interested in Mr. Watson's remarks about Sir Christopher Wren, and remembered the correspondence referred to. The Louvre, however, was very different from an ordinary building, and it was the fashion in those days, when a Royal person undertook to erect a big building, to summon the most eminent artists from different countries to prepare plans and consult on this matter. Thus Wren was greatly interested in meeting Bernini at the Louvre, where he tried to get him to show his plan, but he complains that he was too jealous. In those more leisurely days things were done on the buildings which were now done in workshops, and the Louvre presented doubtless an extraordinary scene of artistic activity. He thought that work on buildings should come to students rather late, when they were more developed, but he entirely agreed that every architect before he practised should have some experience as a clerk of works. That was most essential. Visits to a building were not the same thing as constant residence on the site. What architects required was a system similar to that which engineers had—a system of resident engineers on the works. A man who was on a building from beginning to end got to know about building work in a way that no visiting or even workshop practice would teach him. He hoped that the Day School boys before they went into practice would spend six months at least on some building, and regard it as part of their education. This, however, was not the "top story," as Mr. Watson had surmised.

Mr. H. P. G. Maule also replied. Mr. Adams had referred to high-school training, but Mr. Bolton and he (the speaker) had referred to public-school training, which was a very different thing, unfortunately. Then Mr. Watson referred to visits to buildings in course of erection. The previous day the day-school students went to a building being erected, instead of discussing the dry details of such matters as footings and damp courses. It was one of Mr. Bolton's own buildings, and the following morning the students had to answer a number of questions which he (the speaker) had prepared arising out of the visit of the previous day. The students were asked to state what they had seen and to illustrate their replies by sketches. He thought that answered Mr. Watson's question. Mr. Bolton inaugurated that system, and a definite course of visits had been arranged to museums and buildings in course of erection. Mr. Jenkins referred to the German course. He (the speaker) recently had the advantage of meeting a lot of young American architects, and was told about the training they received, which was similar to that given in Germany, where they had a regular academic course of four or five years, and students finally passed out of the school ready to take positions as architectural assistants or to start as architects on their own account. He had had the advantage of speaking to one student who was twenty-five years of age. He had been working for five years in the Boston School of Technology, and he was now going to take a position as architect in an office of his own. That student had had no experience whatever of any practical sort, and he (the speaker) thought that the system that had been inaugurated in connexion with the Architectural Association was preferable, and he thought that they would agree with him when they saw, as they had that evening, some of the work which had been carried out by students who had only been with them a short time. He thought that example ought to make them pause before they thought of embarking on a truly academic course. With regard to what Mr. Max Clark said about the drawing of a door by a student, the point was interesting to him because a student in the day class was set to draw out a door with a model before him, and so there was no excuse for any student not to know how the panels were put together. He did not think the boy referred to by Mr. Max Clark could be a Day School boy, for with the method practised there was no excuse for a student not understanding such matters. Then, as to what Mr. Jenkins had said about students being examined when they first entered the Day School. An examination was not wanted at all; but there was a sort of examination, for when the student came, or his parents brought him, the practice was to find out what kind of a training he had had. If it was discovered that the student had had a classical training, and was deficient in knowledge of such matters as geometry or Euclid, it was impossible to send him back. So what was to be done in the circumstances? But sometimes a boy was sent back. He had a boy of sixteen brought to him recently who was particularly well grounded in many ways, but he seemed to be too young to enter the school, and it appeared to be preferable to give him the advantage of another year of general training before he entered the Day School, and so he was sent back, although he had a much better general knowledge than many ordinary students who had left public schools. It was impossible in some cases to do as they had done in this case, although the student might be deficient in some of the points which were essential in the training of an architect.

The Chairman said that the conversazione would be held at the Gallery of the Royal Institute of Painters in Water Colours on Wednesday, the 28th inst; tickets, 3s. 6d. single and 5s. 6d. double. He also announced that the next ordinary meeting would be held on November 6, when a paper would be read by Mr. C. A. Nicholson on "Modern Churches."

The meeting then terminated.

Memorial Window, Ubley, Bristol.—A stained-glass memorial window was recently dedicated at Ubley Church, Bristol. The work has been carried out by Messrs. Joseph Bell and Son, of Bristol.

HOLBORN TO STRAND IMPROVEMENT.

The Improvements Committee of the London County Council brought up the following Report at the meeting of the Council on Tuesday:—

". . . As stated in our former report, the Holborn to the Strand improvement now being carried out by the Council received the sanction of Parliament by the London County Council (Improvements) Act, 1899, and it will be within the recollection of the Council that before the scheme as submitted to Parliament was approved by the Council, we consulted the Royal Institute of British Architects, with the result that the scheme which was finally adopted by the Council was one which embraced the suggestions made by the Royal Institute after we had slightly modified the Institute's plan in order to make the crescent road (Aldwych), connecting the new main street with the Strand, more symmetrical. By this scheme a minimum width of 100 ft. was to be provided for the thoroughfare of the Strand, as well as for the streets leading to Holborn, and now named Aldwych and Kingsway. The width of the Strand immediately to the east of its junction with Aldwych at Wellington-street was proposed to be 100 ft., and a similar width was provided for the Strand immediately to the west of its junction with Aldwych at St. Clement Danes Church. This width gradually increased to about 160 ft. to the east and also to the west of St. Mary-le-Strand Church, in order to provide a minimum width of 50 ft. for the traffic on each side of the church. In the large open space between the eastern end of the crescent site and the western side of St. Clement Danes Church, the Council agreed, on March 13, 1900, to allot to the Gladstone Memorial Committee a site for the purpose of the monument proposed to be erected by the Memorial Committee. Nearly all the houses situated between the Strand and Aldwych have been acquired and demolished; some of the land has been staked out and the Council has invited offers for building leases.

We have had before us, however, a letter, dated May 21, 1903, from the Royal Institute of British Architects, calling attention to a letter which appeared in the *Times* on May 4, 1903, from Mr. Hamo Thornycroft, R.A., suggesting a considerable amendment of the Council's line for the northern frontage of the Strand between the two churches, with a view (*a*) to bringing the church of St. Mary-le-Strand into alignment with the centre of the thoroughfare, (*b*) to making the direction of the thoroughfare aim at the front of the church of St. Clement Danes and not at one corner of it, and (*c*) to securing for the future a good view of the Courts of Justice to all approaching that building from the Strand on the west. The Royal Institute has stated that, although in entire artistic sympathy with Mr. Thornycroft's scheme, it is fully alive to the difficulties, financial and otherwise, in the way of its execution, and the Royal Institute has therefore suggested a modification which it thinks could be carried out with a comparatively small sacrifice of pecuniary interest, and would practically secure the advantages of Mr. Thornycroft's scheme. By Mr. Thornycroft's proposal, the portion of the Strand between the eastern end of St. Mary-le-Strand Church and Aldwych would be widened to an average width of 150 ft.; by the Royal Institute's plan the average width would be about 120 ft. The Royal Institute has contended that by carrying out its plan a better view would be afforded of both churches from either end, and also of the Law Courts, and the apparent narrowing of the Strand at the point in question would be obviated, and that, although the eastern end of the crescent site would not be entirely symmetrical with the western end, this would be observable only on paper, and would not be seen when the actual work was carried out. The Royal Institute has also pointed out that by further widening the Strand in the manner suggested the sharp corner at the eastern end of the crescent site, as contemplated by the Council's plan, would be avoided.

We have also had before us a letter from the Royal Academy of Arts suggesting that the fullest consideration should be given to Mr. Thornycroft's proposal, and a memorial from the Further Strand Improvement Committee, forwarding a plan showing an amended line suggested by that committee, the line being somewhat similar to the one originally proposed by Mr. Thornycroft, and providing an average width for the Strand of about 155 ft. In their memorial the Further Strand Improvement Committee contend that by their plan (*a*) the Strand would take its natural course direct to the Law Courts and Fleet-street; (*b*) the Church of St. Mary-le-Strand would be brought into alignment with the thoroughfare; (*c*) an island pavement would be provided where trees might be planted and seats placed in one of the busiest thoroughfares in London; (*d*) that while the building frontage would be reduced the value per foot of the remaining frontage would be increased by the widening of the thoroughfare;

and (*e*) that the proposal has the support of several of the Metropolitan Borough Councils who have had before them the memorial in question.

Upon receiving the letter from the Royal Institute, we were impressed with the importance of the suggestions made, and we accordingly invited certain of its representatives and also Mr. Thornycroft to meet us on the site, in order that they might fully explain their proposals to us, and we have since had before us a plan submitted by the Royal Institute showing definitely the scheme which it now proposes.

For the information of the Council we have caused a cartoon plan to be prepared and to be hung in the Council chamber, showing, by black lines, the scheme as contemplated by the Council; by dotted blue lines the considerable modification originally suggested by Mr. Thornycroft in his letter to the *Times;* by yellow lines and dotted yellow lines the scheme put forward by the Further Strand Improvement Committee, which is somewhat similar to the one originally suggested by Mr. Thornycroft; by red lines the proposal now made by the Royal Institute of British Architects; and by green lines a suggestion laid before us by the Council's superintending architect, by which plan the aggregate width of the Strand would be 115 ft. It is right to state that Mr. Thornycroft at his interview with us has expressed himself as being generally in accord with the proposal now made by the Royal Institute.

If the modification originally suggested by Mr. Thornycroft, and shown by dotted blue lines on the cartoon plan, were carried out, it would necessitate the addition to the public way of the Strand and Aldwych of land which would otherwise be let for building purposes and is valued by the Council's valuer at 350,000*l.*, to which must be added the cost of altering the existing vaults, paving, etc., estimated at 10,000*l.*, making a total of 360,000*l.*; the loss of recoupment if the Council were to adopt the plan submitted by the Further Strand Improvement Committee, shown by yellow lines on the plan, would be 239,400*l.* for land and 10,000*l.* for works, making a total of 249,400*l.*; the loss of recoupment if the Council were to adopt the amendment suggested by the Royal Institute of British Architects, as shown by red lines upon the plan and now accepted by Mr. Thornycroft, is estimated at 70,000*l* for land surrendered and 4,000*l.* for alteration of vaults, paving, etc., making a total of 74,000*l*; while the loss to the Council, if the suggestion made by the Council's superintending architect, and shown by green lines on the cartoon plan, were adopted, is estimated at 59,000*l.* for land and 4,000*l.* for vaults, paving, etc., making a total of 63,000*l.* In order that these figures and also the loss in rates by the adoption of any one of the four schemes may be fully understood we give the following table;—

Suggested modified Line of Frontage.	Average width suggested for the Strand.	Value of land surrendered to public way.	Estimated cost of altering vaults, paving, &c.	Total cost of adopting suggested alteration of frontage.	Cost of erecting buildings on land given up.	Rental value per annum.	Loss in rates per annum. To Westminster at 3s. 3d. in the £.	Loss in rates per annum. To the Council at 1s. 4d. in the £.	Loss in rates per annum. Total.
		£	£	£	£	£	£	£	£
(*a*) Mr. Thornycroft's first plan ...	150	350,000	10,000	360,000	85,000	16,750	4,414	1,169	5 583
(*b*) Further Strand Improvement Committee's scheme	155	239,400	10,000	249,400	82,800	12,690	3,344	886	4,230
(*c*) Royal Institute of British Architects' plan	120	70,000	4,000	74,000	16,475	3,295	868	229	1,097
(*d*) Council's Superintending Architect's plan	115	59,000	4,000	63,000	14,690	2,890	761	201	962

We may remind the Council that members have had an opportunity of studying the question on the site, because we arranged for the erection, before the summer recess, of poles and boards upon the vacant land on the northern side of the Strand between the two churches, the boards being painted in different colours to show the several modifications suggested.

After the most full and careful consideration of all the facts, and having carefully viewed on the site of the improvement the effect of the various proposals made, we have arrived at the conclusion that the width already provided by the Council for the widened Strand, namely, a minimum of 100 ft., is in every respect ample for the present and prospective traffic. It must not be forgotten that, when Aldwych and Kingsway are completed, much of the traffic passing to and from the new street and the southern, eastern, and western parts of London will not use the portion of the Strand between Wellington-street and the Law Courts; that part of the thoroughfare will accordingly be used almost entirely by the traffic passing from Fleet-street westwards and from the western portion of the Strand eastwards to Fleet-street. Fleet-street is being widened by the City Corporation to 60 ft., and the Council is contributing part of the cost. The portion of the Strand opposite the Hotel Cecil has been widened, at the cost of the Council, to 80 ft., and the same width has been adopted for the improvement at the portion of the Strand east of the Hotel Cecil and opposite Beaufort-buildings, now being undertaken by the Westminster City Council, with a contribution from the Council. It will be apparent, therefore, that, while the portion of the Strand between Wellington-street and the Law Courts will presently be relieved of a large amount of traffic which at present passes along it, the Council is providing a width of street far in excess of that which has been adopted for other portions of the same line of thoroughfare. Moreover, the width of 100 ft. is considerably in excess of that generally adopted for street improvements in the past. During the 33 years of the Metropolitan Board of Works the average width adopted for main thoroughfares was 60 ft., which in our opinion was in some cases not sufficient. Charing-cross-road and Shaftesbury-avenue should, we think, have been made more than 60 ft. wide; but there is a very considerable difference between the 60 ft. provided for those thoroughfares and the 100 ft. to which the Council has widened the Strand at that part which shortly will be relieved of some of the traffic. Very few streets constructed by the Board were as wide as 80 ft., and the only thoroughfares which exceeded that width (80 ft.) were Northumberland-avenue (90 ft.) and the Victoria-embankment (100 ft.). The Council when effecting county improvements has, whenever possible, adopted a width of 70 ft. and 80 ft. With these facts before us, it appears that any proposal for increasing the width of 100 ft. for the portion of the Strand between Wellington-street and the Law Courts cannot be made merely on the ground of meeting the needs of the traffic, but must partake almost entirely of the nature of an æsthetic proposal, the chief argument in support of the proposal being to secure better architectural effect by bringing into greater prominence the church of St. Mary-le-Strand and the Law Courts. We have not yet been convinced that by throwing open to view various portions of the Law Courts buildings the architectural effect in the Strand would be considerably enhanced; but, whether this would be so or not, we feel that the Council would not be justified in incurring so large an expenditure as would be involved in securing a doubtful enhancement of the architectural view in the Strand. Having regard to the great width already provided (100 ft.), it will be possible to secure under the Council's scheme an imposing effect for the buildings to be erected on the northern side of the Strand. In view of all the facts above stated, we have to submit the following recommendations to the Council:—

(*a*) That no alteration be made in the present northern line of frontage in the Strand between Wellington-street and the Law Courts, as in the opinion of the Council not one of the proposals made offers of sufficient advantage to justify the Council in incurring the great expense which would be involved in increasing the already adequate width (100 ft.) of the portion of the thoroughfare in question.

(*b*) That a copy of the foregoing report, and the Council's resolution thereon, be communicated to the Royal Institute of British Architects, to Mr. Hamo Thornycroft, and to the Further Strand Improvement Committee."

These recommendations were agreed to after discussion.

Birmingham Municipal School of Art.—Mr. Alfred J. Dunn, A.R.I.B.A., has, on account of pressure of work away from Birmingham, resigned his lectureship in Building Construction and Drawing (elementary, advanced, and honours). The committee have appointed as his successor Mr. Francis B. Andrews, A.R.I.B.A. Mr. Andrews is an experienced lecturer, and has received from the Royal Institute of British Architects one of the twelve "Certificates of Competency to act as Building Surveyor," issued by the Institute on the result of examinations held up to 1901.

THE STANDARD SIZE OF BRICKS.

We take the following from the last issue of the *Journal* of the Royal Institute of British Architects:—

"The following standard has been agreed upon between the Institute and the Brick Makers' Association, and has been drafted in consultation with these bodies and representatives of the Institution of Civil Engineers, and ordered to come into force on May 1, 1904.

The Council recommend that members should insert this standard in their specifications under the title of 'The R.I.B.A. Standard Size of Bricks.'

1. The length of the brick should be double the width, plus the thickness of one vertical joint.

2. Brickwork should measure four courses of bricks and four joints to a foot.

Joints should be ¼ in. thick and an extra 1-16th, making 5-16ths for the bed joints to cover irregularities in the bricks. This gives a standard length of 9¼ in. centre to centre of joints.

The bricks, laid dry, to be measured in the following manner:—

(*a*) Eight stretchers laid square end and splay end in contact in a straight line to measure 72 in.

(*b*) Eight headers laid side to side, frog upwards, in a straight line to measure 35 in.

(*c*) Eight bricks, the first brick frog downwards and then alternately frog to frog and back to back, to measure 21½ in.

A margin of 1 in. less will be allowed as to *a*, and ½ in. less as to *b* and *c*.

This is to apply to all classes of walling bricks, both machine and hand-made."

THE LONDON COUNTY COUNCIL.

The usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring Gardens, Lord Monkswell, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Battersea Borough Council 15,000*l.* in respect of cost of erecting working-class dwellings; Hampstead Borough Council 1,273*l.* for street lighting purposes, and 1,800*l.* for erection of wall at cemetery; St. Pancras Borough Council 23,960*l.* for electric light installation; and Woolwich Borough Council 16,000*l.* for erection of municipal buildings.

Tramways.—The Highways Committee recommended, and it was agreed, that expenditure on capital account of sums not exceeding 30,500*l.* in all be authorised, in respect of the construction, for the underground conduit system of electrical traction of the tramway, authorised by the London County Tramways Acts, 1900, along St. John-street and St. John-street-road, Islington.

Letting of the Council's Land.—Mr. Mullins, Chairman of the Corporate Property Committee, stated in answer to questions that only three lots of land had been sold at the recent sale—namely, in Southampton-row, 620*l.*; in Long-acre, 55*l.*; and in Mare-street, 40*l.* Since then, there had been another lot sold in Mare-street at 40*l.* He had been asked what it was that militated against the Council's success. He thought the difficulties had been greatly exaggerated, as the Council's conditions were not more stringent than those of many of the large London landowners. The conditions were framed with a desire to raise the standard of architecture in London, and it was desired to take every advantage they could of the sites they had. He did not believe that there would be any difficulty in the matter. Negotiations had already been begun with the auctioneers, and there was every reason to believe that they would bear fruit. There seemed to be distrust by the public of the Council's architect acting as arbitrator.

Mr. Piggott said that all the difficulty seemed to be due to Clause 13 in the conditions, according to which all questions of dispute were to be settled by the Architect to the Council. The public seemed to dislike that, not because of any distrust of the architect as architect, but because he was but one man. They had an excellent architect, but he (the speaker) would not trust one man if he wished to spend a large sum of money on a site. He believed that if Clause 13 were altered all the difficulty would cease.

Mr. Robinson, Deputy Chairman, agreed

that Clause 13 was what was disliked in the conditions.

Mr. Emden said that the clause was usual in building agreements in London, and he did not think that that was the cause of the difficulty. The difficulty was that the clauses were more strictly enforced than was the case on other large estates. The Council was inviting people to lay out large sums of money, and the clauses ought to be read in a liberal spirit. It would be better for the Council to bring its conditions into accord with those relating to other London estates. Builders and others wanted to be able to put up such buildings as shops and offices that could easily be let—not palaces. He agreed that the Council should get a good architectural result, but it must not be to the detriment of the man who was going to build.

Mr. Howell J. Williams asked the Chairman of the Committee to bring up a Report on the whole subject of the conditions. What was objected to was the clause relating to the architect, *i.e.*, "His decision in all matters shall be final and binding." As large sums of money would be locked up during a dispute which the architect would have to decide, builders could very easily be ruined if this clause stood.

Mr. Burns said that the ratepayer had to be considered, too. If they departed from the principle of single arbitrament the street would be spoilt by a heterogeneous collection of red brick, terra-cotta, and other buildings. The difficulty in regard to letting the land was due to a lack of purchasing power.

Mr. Mullins said he would bring the matter before the Committee, and the matter should be brought before the Council again.

Street Improvement, Piccadilly.—The following recommendation of the Improvements Committee was agreed to:—

"That, with the view of assisting the Council's negotiations and endeavouring to save expense, application be made to Parliament in the Session of 1904 to enable the Council to acquire compulsorily the leasehold and other minor interests in the shops at Walsingham House needed in connexion with the widening of Piccadilly between Arlington-street and the Green Park, sanctioned by the Council on May 26, 1903."

The Hackney Fire Disaster.—In reply to questions, Mr. E. Smith, Chairman of the Fire Brigade Committee, said that in reference to the fatal fire in Hackney-road on Monday morning, it was a fact that the shop was a projecting one, similar to a shop close by where a fatal fire occurred a year ago. There was no doubt that if a fire occurred in shops similarly constructed in other parts of London it would be almost impossible to effect a rescue, and he hoped the Council would try to get power to regulate such buildings. The wall between the shop and the inner room was only of lath and plaster.

Improvement of the Strand.—The Improvements Committee recommended:—(*a*) That no alteration be made in the present Northern line of frontage in the Strand between Wellington-street and the Law Courts, as in the opinion of the Council not one of the proposals made offers sufficient advantage to justify the Council in incurring the great expense which would be involved in increasing the already adequate width (100 ft.) of the portion of the thoroughfare in question. (*b*) That a copy of the foregoing Report, and the Council's resolution thereon, be communicated to the Royal Institute of British Architects, to Mr. Hamo Thornycroft, and to the Further Strand Improvement Committee."

[The Report of the Committee is printed on another page.]

Mr. Beachcroft moved the insertion of the following words after "Architects":—"With an expression of regret that the Council, for financial reasons, is unable to make any alteration in the direction proposed."

Mr. Collins seconded, but the amendment was lost. The Committee's recommendations were then agreed to.

Long-grove Asylum Foundations.—The Asylums Committee reported as follows:—

"The Works Committee having declined to undertake the putting in of the foundations of this asylum at the amount of the quantity surveyor's estimate—viz., 47,750*l.*—we have to report that we invited by advertisement tenders for the carrying out of the work. Fourteen tenders were received, as follow:—

	£	s.	d.
Joseph Howe and Co., West Hartlepool	45,694	10	9
J. E. Johnson and Son, Leicester	47,600	0	0
Wm. King and Son, Westminster	47,648	0	0
Charles Wall, Chelsea	47,729	0	0
Wm. Moss and Co., Loughborough	48,486	9	10
McCormick and Son, Islington	48,870	11	0
H. Willcock and Co., Wolverhampton	49,725	9	8
Kerridge and Shaw, Cambridge	50,731	5	11
J. Parnell and Sons, Rugby	51,339	10	0
J. and M. Patrick, Wandsworth	52,899	0	0
Pethick Brothers, Westminster	55,120	15	0
Leslie and Co., Kensington	55,759	0	0
Pedrette and Co., Finsbury-park	59,827	2	11
Stephen Kavanagh and Co., Surbiton	60,993	11	8

After the fullest consideration, and in all the circumstances, we came to the conclusion that the interests of the Council would be best served by the acceptance of the tender of Mr. Charles Wall, amounting to 47,729*l.*, which, although not the lowest, was less than the quantity surveyor's estimate for the work. We have accordingly entered into a contract with Mr. Wall, and the same has received the approval of the Home Secretary."

Vauxhall Bridge—Superstructure.—The Bridges Committee reported that the following tenders had been received for the superstructure of Vauxhall Bridge:—

	£	s.	d.
Messrs. Pethick Brothers (Foreign steel)	132,073	0	0
Ditto (Foreign steel)	133,664	0	0
Ditto (British steel)	137,073	0	0
A. Fasey and Son	141,741	13	9
C. Wall	142,942	9	5
Patent Shaft and Axletree Co.	153,551	10	0
Heenan and Froude, Ltd.	154,584	0	0
A. Handyside and Co.	158,200	11	4
Cochrane and Sons	158,500	0	0
Perry and Co.	160,360	0	0
Baudet, Donon, and Co.	166,587	9	0
J. Westwood and Co., Ltd.	168,803	0	9
Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft (Steelwork only)	110,771	2	6

We are advised that the steel proposed by Messrs. Pethick in their lowest tenders is of such a kind that the chief engineer would not recommend its acceptance, and we have therefore considered only their tender which provides for the use of British steel. Messrs. Pethick propose that they shall have the option of choosing, as sub-contractors for steelwork, either the Patent Shaft and Axletree Company, Messrs. Handyside and Co., or Sir W. Arrol and Co., Ltd. Of the other firms tendering, both the Patent Shaft and Axletree Company and Messrs, Handyside propose Messrs. Pethick as sub-contractors for masonry. Messrs. Fasey and Son have tendered for work for the Council, and Mr. Wall carried out the reconstruction of Highgate-archway, but in neither case were the works of such magnitude as that now in question. Messrs. Heenan and Froude propose to carry out the whole of the work themselves. We have carefully considered the tenders, and are of opinion that that of Messrs. Heenan and Froude should be accepted. . . . We recommend:—'That the tender of Messrs. Heenan and Froude, Ltd., to undertake the erection of the superstructure of Vauxhall Bridge for the sum of 154,584*l.*, be accepted; that the solicitor be instructed to prepare the necessary contract; and that the seal of the Council be affixed to the same (when ready).'"

Mr. E. White said that the tender recommended was 22,000*l.* above the lowest tender for foreign steel and 17,000*l.* above the lowest tender for British steel. They had a tender from Mr. C. Wall, of London, which was 12,000*l.* below the tender recommended. He would say nothing about London work for London men, but when by giving the work to a London man they would save 12,000*l.*, it did seem to him an astonishing thing that they should propose to give the work to a North Country firm. He moved that the tender of Mr. Wall be accepted.

Mr. Torrance seconded the amendment. He knew of nothing which would justify the exclusion of a reputable firm whose tender was so much lower.

Mr. H. Ward said he was inclined to support the amendment, but he thought it would be better to refer the matter back for further consideration. There were few contractors who could do all the work themselves, and it would doubtless be found that Mr. Wall would sublet the steel work.

Mr. Allen said that Mr. Wall had not expressed such an intention.

Mr. White said he had heard from Mr. Wall that he proposed to carry out all the work himself.

After further discussion the amendment was carried.

Office of District Surveyor, West Hackney.—The Building Act Committee recommended:—

(*a*) That so long as the premises, No. 360, Mare-street, Hackney, continue to be used as the office of the district surveyor for West Hackney, the boundaries of the districts of West Hackney and East Hackney (North) be so modified as to include in the former district one-half of the building known as No. 360, Mare-street, Hackney.

(*b*) That the Council do, under Section 141 of the London Building Act, 1894, approve of the office of the district surveyor for West Hackney being situated at No. 360, Mare-street, Hackney; and that, as required by that section, notice of the situation of such office be given to the local authority.

The recommendations were agreed to.

The London Building Act Amendment Bill.—Mr. MacDonald asked the Chairman of the Committee, in view of the fatal fire in Hackney-road, what was being done in the matter of the amendment of the Building Act.

Mr. Burns asked whether the Chairman was aware that the last fatal fire in that neighbourhood was in a shop similar to the one just referred to, and whether, seeing that nine lives had been lost in fires originating in forecourt shops, the Committee would take steps to prevent the recurrence of other fatalities.

Captain Hemphill, Chairman of the Committee, said the Committee were proceeding as rapidly as possible with the work of a general amendment of the Building Act. In June last they wrote to the City Corporation, the City of Westminster, the Borough Councils, the Institute of Architects, the District Surveyors' Association, the Chamber of Commerce, and other bodies, asking for suggestions for the amendment of the Act. The Committee had now a vast amount of material collected, and were proceeding with the necessary steps in order to hand over the material to the Parliamentary Committee for the purpose of drafting a Bill as soon as possible. Several valuable suggestions had been received from some of the Borough Councils, and the Committee hoped to receive suggestions from other quarters. The Bill which was brought forward last year dealt with these one-story forecourt shops, and it was proposed to make the roofs and partitions of these buildings fireproof. The Bill was not a perfect one, but it would have been a useful one on which an Act could have been framed, and it was regretted by the Committee that it had to be withdrawn. The Committee desired to impress on the Council the necessity for the amendment of the Act, both as regards protection of life from fire, and with regard to other matters, and they hoped that when the amendments were brought forward they would receive a large amount of public support and be carried into law. Many fires had occurred in these shops, and the Committee thought that this kind of building should be discouraged as much as possible.

Mr. Sankey said that the City Corporation was chiefly in opposition to the previous Bill. What was the position of the Corporation now?

Captain Hemphill said that the Corporation would not make any suggestions until they had a draft of the Bill before them. It would be much better to have their suggestions before, rather than after.

The matter then dropped.

London Squares.—Mr. Howell J. Williams said, in view of the advertised sale of Edward-square, Islington, he would like to know whether it was proposed to take any action in the matter—to save that square and other London squares from being built upon?

Captain Hemphill said the Committee had the matter before them. They were inclined to think it was a matter for the Parks Committee.

Mr. Stuart Sankey has the following motion on the paper:—

"That, in view of the growing tendency to offer for sale, for building purposes, squares and gardens in London which for many years have been retained as open spaces for the use of the frontagers, it be a further instruction to the Parks and Open Spaces Committee to consider and report whether Parliamentary powers should not be sought by the Council to secure that such squares and gardens should remain unbuilt upon, by payment, for the imposition of such restrictions, of fair and reasonable compensation to the freeholders and others having vested interests therein."

The Council adjourned soon after six o'clock.

ARCHITECTURAL SOCIETIES.

Sheffield Society of Architects and Surveyors.—The ordinary monthly meeting of the Sheffield Society of Architects and Surveyors was held on the 15th inst. in the Society's rooms, Leopold-street, Mr. E. Holmes in the chair. The following gentlemen were elected associates:—Messrs. W. Langcock, F. H. Wrench, G. E. Marshall, and S. M. Gibson. The President (Mr. Thomas Winder) then gave his inaugural address. He mentioned at the outset of his address that the Council of the Royal Institute of British Architects was again giving consideration to the question of registration, and that of the Surveyors' Institution had adopted alterations to their rules which almost amounted to making surveying a closed profession. Sooner or later the question would have to be faced both by surveyors and architects in consequence of the action of members of another profession. No architect or surveyor of standing would dream of drawing up legal documents or of interfering with legal questions, and it was greatly to be regretted that members of the legal profession were abandoning professional traditions and encroaching seriously upon the duties of the surveyor, the valuer, and the land agent. Large numbers of plans are being drawn upon legal documents, often most incorrectly, by irresponsible junior clerks in solicitors' offices, and drawn with as little understanding of the meaning of the work as ability to make a correct plan. These plans were charged for, and this was unfair to clients, and would prove a fruitful source of litigation. Solicitors were also computing areas of plots, sub-dividing leaseholds, negotiating sales (including valuation), and wherever possible absorbing the duties and emoluments of surveyors and land agents. This was but another phase of the curious system by which one went to the draper for plumbing repairs, and to the chemist for stationery and literature, and it had been greatly stimulated by the publication of that most misleading publication, the 41 in. Ordnance Map, of which a complete set existed in the library of the Sheffield Law Society for the use of members. Perhaps the burning question of the day, continued the President, was the provision of so-called "artisans' dwellings." This question would very closely affect their professions were it not for opinion, which had even found voice in the City Council, that the introduction of what they were pleased to call professionalism into the question was undesirable. The City Council recently had an opportunity of getting the benefit of the experience and ability of the whole of the Sheffield architects, but was most careful so to frame its conditions as to prevent the majority of the members from competing. Their members could, and would, have given invaluable assistance in the solution of that most difficult problem—the provision of a sanitary and convenient cottage, at the minimum cost, with the maximum accommodation, which would comply with the Corporation by-laws (this was a *sine qua non* unless the City Council was building), and should also conform to the fads of the Local Government Board, one of which was that the smell of cooking must be confined to the kitchens. He had elsewhere expressed the opinion that the authorities were making a cruel and gigantic blunder in the way they were approaching this most difficult social problem. They condemned a large area of property and destroyed numbers of houses long before others were erected to take their place. This could only result in the poor creatures turned out herding in already overcrowded houses, with results such as he came across recently, where seven families were packed into one house, whilst the local authorities—not of Sheffield—were squabbling with the Local Government Board because the latter considered the workmen's dwellings were too large for people one-third of whose earning would be absorbed by the rent of the Corporation-provided houses, even should they be fortunate enough to secure them. What were wanted, and what the architects of Sheffield should be encouraged to design, were small, well-built, inexpensive houses of from one to five rooms, which unskilled workmen, widows, and others who earn a bare living wage could afford to rent. No one would grudge the erection of such houses, even if they were let at a loss, but to erect villa residences which ratepayers had to subsidise was unfair to ratepayers, to contractors, and to property owners, and to all but the fortunate, and generally far from needy, few who get possession of them. His idea was that if Corporations could be induced to adopt the system in vogue amongst railway and waterworks contractors, and to erect iron houses upon sites which at the present time were suitable, they might in twenty or thirty years remove them and erect others on sites which would then be more suitable, making a handsome profit out of the improved value of the old sites. The piling up of by-laws and Acts of Parliament for municipal or urban aggrandisement was a very grave menace to the city's future well-being. The fact that a person who inadvertently or otherwise broke a by-law was allowed in some cases to continue to do so on payment of an annual fine was proof that such by-law was unnecessary. This was further proved by the fact that Corporations repeatedly ignored their own by-laws. To fine a working man for "erecting" obsolete tramcars upon his garden patch because they were not incombustible, and because the walls were not 9 in. thick, and to oppose the erection of corrugated iron buildings because the walls did not come up to the thickness required by the by-laws, was incompatible with the fact that the Corporation allowed a second story of wood to be put upon an existing wooden erection on its own market premises, and that in dangerous proximity to its own Corn Exchange. Again, when architects sent in building plans they knew from painful experience they must not step over the building line, but this rule did not hold good when the Tramways Committee were erecting tram sheds or the Highway Department premises for themselves. The new by-laws would require rooms in dwelling houses to be 9 ft. high throughout, but if the houses were erected by the Corporation 7 ft. 9 in. high (for part of the rooms) became a sanitary height. The Council of the Society had given much time to the consideration of the education question, and had reason to hope that architectural education would enter into the curriculum of the new Sheffield University. The successful architect or surveyor of the future must be a very highly-educated man. The recent visit of the British Archæological Association to Sheffield had drawn attention to the rapidity with which ancient buildings were disappearing, and had shown how poor were the records which had been kept of them. Could not the Architects' Society do something to preserve them from utter oblivion, enrich their library, and increase its usefulness by adding to it photographs and measured drawings of the few remains which were worth recording. The committee of the High Hazels Museum would accept with gratitude any ancient object of local interest, and they might assist in making a valuable collection of old lead hoppers, mantels, plaster work, and especially examples of early cast-iron work, of which latter beautiful examples were turned out by the Green Lane Works in Godfrey Sykes' time, and at earlier dates.—Mr. Winder also gave a lecture on "Farm Buildings." He opened with a plea for the use of local materials, and gave a rapid sketch of the evolution of the English homestead, which he believed was a development of the Saxon one, in which the master, men, maids, and stock all dwelt under one roof. This was followed by remarks on the position of the homestead upon the holding, upon drainage and the water supply, in which he warned his hearers against the danger of infection to wells, etc., by the percolation of water through worm or mole holes, or through holes made by the roots of trees and vegetables. He said that it is usual for the farmer to bear the cost of the team work for new buildings—which is probably a survival of the old boon-team service—a feudal service which was not altogether obsolete when he entered the service of the Duke of Norfolk, thirty years since. The best arrangement of the various buildings with their respective positions on the homestead was then considered, together with the most suitable materials for their construction. The lecturer drew the attention of his audience to the anomaly of the use of the same by-laws as to air space and ventilation for cowhouses situate in the slums of a city and for those on our bleak Derbyshire and Yorkshire hills. He said the pigeon cote was not now obtaining the attention it deserved, and that where a large cote was found upon a seventeenth-century homestead, that homestead would probably prove to have been the Manor House, and gave as examples of this Kimberworth, The Grange, Hesley Hall, Handsworth, etc.—The lecture was illustrated by slides made by Mr. E. Claude Skill, and by others lent by Mr. J. R. Wigfull, which were shown by Mr. J. Atkinson.—On the motion of Mr. Gibbs, seconded by Mr. J. Smith, and supported by Messrs. E. Holmes, H. L. Paterson, and others, a hearty vote of thanks was accorded to the President for his address and lecture.

Illustrations.

A PRELIMINARY IDEA FOR LIVERPOOL CATHEDRAL.

THIS design was submitted in the preliminary qualifying competition.

Owing to the known predilection of the Committee in favour of the more stereotyped and orthodox Gothic, the uncertainty at the time this idea was thought out as to who the assessors would be, and the greater uncertainty as to the final result, the preliminary design was not worked out as thoroughly as it would have been under other and more favourable circumstances.

The governing idea was the seating of a very large congregation within both sight and hearing of the preacher. About 3,500 could be accommodated under the octagon, the galleries over the entrances to same, the transepts on the diagonals, etc. The distance from the pulpit to those comparatively few furthest away being about 150 ft.

The clear span of the nave and chancel is 62 ft., between the main walls of nave 92 ft., low aisles 13 ft. wide. The height of the columns 100 ft., and to the apex of groining 122 ft. The diameter of the octagon is 121 ft., and on the diagonals 123 ft.

A. H. Skipworth.

RECTORY, DONHEAD ST. ANDREWS', WILTS.

This house was built some years ago from the design of Mr. C. E. Ponting, of Marlborough.

The house is situated on a hill overlooking the valley in which lies the village, and has a good view of the Downs. It was designed for the walls to be entirely in stone, but exigencies of cost necessitated the use of red brick, with dressings of Bath stone. The roofs are covered with tiles.

A point in the plan is a spacious hall, to be used as a sitting-room, with doorway giving access to the garden terrace. The parish-room shown has not been erected.

The builders were Messrs. Estcourt and Son, of Gloucester.

ENGINEERING SOCIETIES.

The Junior Institution of Engineers.—There was a large attendance of the members on the 17th inst., when the Vauxhall New Bridge Works were opened to the visit of this Institution. Mr. W. C. Copperthwaite, M.Inst.C.E., Bridges Engineer, London County Council, who showed the party over, first went through the drawings, explaining all the important features of design and the methods adopted in executing the work so far as it had proceeded. The running of the cableway erected for removing the old bridge and for building operations on the new, was demonstrated, an excellent bird's-eye view of the works being obtained from the suspended cage in which the visitors were conveyed across the river. The new bridge will replace the old bridge opened in the year 1816, which was the first iron bridge built across the Thames. It consisted of nine cast-iron arches, each of 78 ft. span, with stone piers and abutments. With the increase of traffic the bridge, being only 30 ft. 6 in. wide, proved too narrow, and in 1895 the London County Council obtained an Act for its re-building. The new structure, when finished, will have five steel arches, built upon granite masonry piers and abutments. The centre span will be 149 ft. wide in the clear, the two intermediate spans 140 ft. 4 in., and the shore spans 130 ft. 6 in. respectively. The work at present executed consists of the masonry of the piers and abutments of the new bridge, built to a level of 9.75 ft. above O.D. The foundations are of concrete, carried down, in the case of the abutments, to about 18 ft. below O.D., and the piers about 30 ft. The masonry is of white Cornish granite, laid in courses of 2 ft. thick, and backed by 6 to 1 concrete. The method of construction, after the old bridge had been removed, was to build

dams similar to the one now visible at the Westminster abutment, of 14 in. by 14 in. tongued and grooved piles. Around these dams protective dolphins were placed for the security of the river traffic. These dolphins are still in existence. The foundations of the pier are in clay. Considerable difficulty was experienced in the case of the Westminster abutment, and of the pier supporting the Westminster central arch on the Westminster side. In the latter case, when the excavation of the foundation was nearly completed the dam burst, and very serious difficulty was met with in its repair. It is proposed to finish the work in the following manner:—The abutments will be built of ornamental granite facing to the parapet level of the bridge, but the masonry of the piers will only be carried up to the springing of the arches. Above that level they will be finished in steel work, the ends of the piers being decorated with ornamental cast-iron panels. The steel ribs will be thirteen in number in each arch, and the superstructure is so arranged that the parapet of ornamental wrought-iron projects over the outside ribs by means of cantilevers.

COMPETITIONS.

ELEMENTARY SCHOOL, EALING.—The Education Committee of the Borough of Ealing have commenced their labours by having a competition for a new public elementary school among architects actually resident in Ealing. Six sets of plans have been submitted, and will probably be exhibited shortly. The assessor in the competition was Mr. Edward R. Robson, of Westminster.

LIBRARY, HEYWOOD.—The drawings received by the Committee in connexion with this competition have been on view in the Lecture Hall of the Technical School. The first premiated design was by Messrs. North and Robin, of London; the second by Messrs. David Bird, Manchester; and the third by Mr. R. J. McBeath, Sale, near Manchester.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Strand.—An iron and glass shelter to the new Gaiety Theatre, Strand (Messrs. E. J. Prest and Co. for Messrs. E. Runtz and Ford).—Consent.

Norwood.—Addition to the Corpus Christi Roman Catholic Church, Brixton-rise, to abut upon Trent-road and Horsford-road (Messrs. J. F. Bentley and Son).—Consent.

Westminster.—That the application of Messrs. Davis and Emanuel for an extension of the periods within which the erection of a building for the Charity Organisation Society, on the site of Nos. 284 to 298 (even numbers only) inclusive, Vauxhall Bridge-road, Westminster, was required to be commenced and completed, be granted.—Consent.

Brixton.—Blocks of buildings on a site on the north-west side of Coldharbour-lane, Brixton, abutting also upon Lilford-road and Kenbury-street (Mr. E. E. Bird for Messrs. L. Whitehead and Co., Ltd.).—Consent.

Lewisham.—Six houses on the west side of Bromley-road, Catford, southward of Aitken-road (Messrs. Norfolk and Prior for Mr. W. Bailey).—Refused.

Chelsea.†—Iron and glass shelter over the entrance to the restaurant at Harrod's Stores on the west side of Basil-street, Chelsea, at the corner of Hans-road (Mr. C. W. Stephens for Harrod's Stores, Ltd.).—Refused.

Deptford.—Permission to retain a wood and glass pediment above the shop front of Nos. 7 and 8, The Broadway, Deptford (Messrs. Jenrick and Crocker).—Refused.

Finsbury, Central.—Warehouses with one-story shops in front on the site of Nos. 1, 2, and 3, Clerkenwell-green, Finsbury (Mr. S. Adams for Mr. W. H. Adams).—Refused.

Finsbury, East.†—A porch at an entrance in South-street to a building in course of erection on the east side of South-street, and north side of South-place, Finsbury (Messrs. Davis and Emanuel for Mr. C. G. Hill).—Refused.

St. George's, Hanover-square.—A projecting sign in front of No. 16, Dering-street, Oxford-street, St. George's, Hanover-square (The Tayler Smith Electric Company for Mr. R. Franks).—Refused.

St. George's, Hanover-square.—An iron and glass shelter over the entrance to No. 17A, Allington-street, St. George's, Hanover-square (Messrs. G. Trollope and Son for Mr. J. Isaacs).—Refused.

Wandsworth.—One-story shops upon part of the forecourts of Nos. 6, 7, 8, and 9, Replingham-road, Southfields, Wandsworth (Mr. T. J. Lynes for Mr. C. G. Spagnolette).—Refused.

Width of Way.

Finsbury, East.—Buildings on the site of Nos. 35-39, Old-street, St. Luke's, with external walls at less than the prescribed distance from the centre of the roadway of Teanby's-buildings (Mr. W. E. Wallis for Messrs. H. Bates and Son).—Consent.

Southwark, West.—A water-closet building on the north side of Clink-street, Southwark, eastward of Bank End (Messrs. Deakin and Cameron for Mr. H. Baerselman).—Consent.

Woolwich.†—Retention of a clubroom at the rear of the "Park Tavern," Park-place, Eltham, with external walls and with a boundary fence at less than the prescribed distance from the centre of the roadway of Back-lane (Messrs. Gush, Phillips, Walters, and Williams for Messrs. T. H. and W. St. J. Fox).—Consent.

Brixton.†—A one-story shop upon the forecourt of Hebert House, Coldharbour-lane, Brixton, with external walls at less than the prescribed distance from the centre of the roadway of Milkwell-yard (Messrs. T. Laws and Son for Messrs. Hammond and Baker).—Refused.

Width of Way and Line of Fronts.

Wandsworth.†—Buildings on the north-west side of Greyhound-lane, Streatham, westward of Pathfield-road (Mr. W. Grellier for the Crooke-Ellison Estate).—Refused.

Hampstead.—One-story shops upon the forecourts of Nos. 3 and 5, Fairhazel-gardens, Hampstead, to abut also upon Coleridge-gardens (Mr. W. Daniell for Mr. J. Gibbs).—Refused.

Line of Frontage and Construction.

Bow and Bromley.—Retention of an iron and concrete timber drying stage at Tredegar Works on the south-west side of Ordell-road, Bow (Messrs. Perry and Co.).—Consent.

Strand.—An iron and terra-cotta front across the roadway leading from the Strand to the Savoy Hotel extension, Strand (Mr. T. E. Collcutt for the Savoy Hotel Company, Ltd.).—Consent.

Space at Rear.

Lewisham.—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of No. 39, Ermine-road, Lewisham, with an irregular open space at the rear (Messrs. S. J. Jerrard and Sons for the executors of the late S. J. Jerrard).—Consent.

St. George's, Hanover-square.—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a bath-room and water-closet addition at the rear of No. 6, Eaton-terrace, St. George's, Hanover-square (Mr. W. J. Bassett for Mrs. M. Spencer-Ledyard).—Consent.

Deviation from Certified Plans.

Whitechapel.—A deviation from the plans approved on July 21, 1903, in respect of the erection of a stable building on a portion of the site of stables at No. 76, Hanbury-street, Whitechapel, so far as relates to a reduction in the height of such building and the substitution of a plain for an ornamental gable (Mr. P. E. Culverhouse).—Consent.

Width of Way and Widening of Street.

Hackney, South.—Houses on a site on the south side of Woodbine-cottages and abutting on the west side of a way leading out of the south side of Woodbine-cottages, Chatham-place, Hackney (Messrs. Hodson and Whitehead for Messrs. J. and T. G. Smith).—Consent.

Hackney.—That an order be issued to Messrs. Hodson and Whitehead sanctioning the adaptation as a street for carriage traffic of a portion of a way leading out of the south side of Woodbine-cottages, Chatham-place, Hackney (Messrs. J. and T. G. Smith).—Consent.

Means of Escape at Top of High Buildings.

Strand.—Means of escape in case of fire proposed to be provided on the fifth story of Nos. 62 to 65, Charing-cross, Strand (Mr. G. R. Julian for the Canadian Pacific Railway Co.).—Consent.

Buildings for the Supply of Electricity.

Holborn.—An addition to the sub-station situate in Tower-street, Seven Dials, Holborn, to abut upon West-street (Mr. J. S. Highfield for the Metropolitan Electric Supply Company, Ltd.).—Consent.

The recommendations marked † are contrary to the views of the local authorities.

COURT OF COMMON COUNCIL.

THE usual Court of Common Council was held in the Guildhall on Thursday last week.

Mr. Carl Hentschel asked if the work of relaying the wood blocks in Fleet-street could not be continued day and night.

The Chairman of the Streets Committee replied that the work should have been continued day and night, but that sometimes it was said that certain work could not be done during the night.

The Streets Committee submitted a report on the proposed by-laws for the regulation of the demolition of buildings in the City, and on the recommendation of the committee the by-laws were approved, and it was agreed to submit them to the Local Government Board for confirmation.

The same committee reported on a petition which had been received from certain occupiers of premises in London Wall, Circus-place, and Finsbury-circus, asking that wood be substituted for the asphalt and macadam roadways of those thoroughfares. The committee stated that the pavement of the circus was in good condition, and could not at present be disturbed, and that it was undesirable to substitute wood for asphalt in London Wall. They recommended, however, that the portion of Finsbury-circus between Circus-place and East-street be paved with creosoted deal at a cost of 1,300*l.*, and this was agreed to.

The Improvements and Finance Committee submitted the award of the arbitrator appointed in 1901, agreeably to section 6 of the City of London Sewers Act, 1807, certifying the amount to be paid out of the Consolidated Rate to the Mayor, Aldermen and Citizens, as trustees of the Bridge-House Estates, at 55,325*l.*, for the ground required for widening London Wall and Blomfield-street, between Albion-place and Finsbury House. The committee recommended that an arrangement should be agreed to, whereby the matter would be settled for the sum of 50,000*l.*, including costs.

Mr. Morton was of opinion that the London County Council should have contributed 25,000*l.* towards the cost.

The report was adopted after some discussion.

The same committee reported that an arrangement had been come to with the London County Council by which that body had agreed to contribute one-half the net cost of widening Mansell-street. The work would be done as opportunities occurred. The total cost is estimated at 105,500*l.*

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting was held on Saturday last week, Sir Robert Hensley in the chair.

A letter was received from the Local Government Board authorising the expenditure of an additional sum of 3,468*l.* in the erection of Millfield.

Joyce Green Hospital.—The Hospitals Committee reported that they had informed the Local Government Board that it was not proposed to proceed with the additions to this hospital during the coming winter.

Eastern Hospital.—The Works Committee submitted a plan of proposed alterations at the laundry of this hospital. The cost was estimated at 850*l.* The plans were approved.

South-Eastern Ambulance Station.—The same committee reported that Messrs. T. W. Aldwinckle and Son had prepared amended plans for the provision of additional accommodation for small-pox nurses at the South-Eastern Ambulance Station, and recommended that the plans be approved. This was agreed to. The amended scheme will cost only 1,600*l.*, as against 2,950*l.* for the original scheme.

BOOKS RECEIVED.

OFFICIAL REPORT OF THE INTERNATIONAL FIRE PREVENTION CONGRESS, 1903. (British Fire Prevention Committee.)

THE "MECHANICAL WORLD" POCKET DIARY, 1904. (Emmett and Co., Manchester.)

THE PURIFICATION OF SEWAGE AND WATER. By W. J. Dibdin, F.I.C., F.C.S. (The Sanitary Publishing Company. 21s.)

WOOD CARVING: DESIGN AND WORKMANSHIP. By George Jack. (John Hogg.)

GREAT MASTERS: 1400—1800 Reproductions in photogravure, with text by Sir Martin Conway. (W. Heinemann.)

A CENTENARY MEMORANDUM.—Joseph Aloysius Hansom, architect, founder of the *Builder* and inventor of the Hansom cab, was born at York on October 26, 1803. He died June 29, 1882, at 399, Fulham-road. It is not often that the invention of a new vehicle proves such a complete and permanent success as the Hansom cab has been.

Correspondence.

THE LATE MR. H. W. BREWER.

Sir,—In addition to the appreciative notices which have appeared as to this eminent artist, may I add that the views of London schools in my work on "School Architecture," published in 1874, were all drawn on the spot by him, and, in the majority of cases, were also transferred to the wood by him. His is a loss not easily replaced.

Edward Robert Robson.

A REMINISCENCE.

Sir,—As a subscriber to your journal since 1848, and having been acquainted with the late Mr. Brewer since 1853, when he resided in Hampstead, perhaps the following reminiscences of his association with Hampstead and its artists may be interesting to many of his admirers.

At that time an association was formed called the Hampstead Conversazione of Arts, and an exhibition was held twice a year at the Assembly Rooms, Holly Bush-hill (now the Constitutional Club), and with it were associated some of the leading lights who resided here, and who adorned the artistic and architectural world during the last half-century—notably the late Clarkson Stanfield, R.A., Mr. Herbert, R.A., Professor Cockerell, Mr. Wardell, and other eminent men who have joined the majority, the then active and most energetic members being the late Mr. Geo. Stanfield and the late Mr. H. W. Brewer.

The association and grounding with such men as these (with his unique mind for minutiæ and detail) produced in the late Mr. Brewer not only a genius that will be difficult to replace, but also a generous and genial friend to many.

Permit me, as an old contributor, to join issue with his many friends in sincere sympathy at his loss. R.I.P., but his works are left to speak.

W. H. Watts.

"HAIR BITUMEN."

Sir,—Specimens of the above sent to us by Messrs. Engert and Rolfe some weeks ago still retain an appreciable odour, so that we should be afraid to use the material as a sound deadener between rough and finished floors.

Certain so-called "inodorous" felt (not Messrs. Engert and Rolfe's) which we used some years ago for this purpose emits a distinct odour in certain states of the weather. So much do we distrust the inodorous qualities of this kind of material that we now use ordinary grey felt, such as is used under carpets, for a sound deadener between the rough and finished boarding of a floor. This we find very fairly effectual, and less expensive and messy than wet pugging.

Hopkins and Walker.

5, Staple Inn,
October 9.

The Student's Column.

CONCRETE-STEEL.—XVII.

FLOOR DESIGN.

No detail of modern building construction is more intelligible than the simple floor of concrete supported by steel girders and joists. However extensive such a floor may be, it is readily analysed into units, each of which has to carry a certain definite proportion of the total load, and the dimensions of each unit are calculated by the simple rules governing the design of beams.

Thus, in the case of a floor intended to carry a uniformly distributed load, the weight per square foot of the external load is first taken into account in settling the necessary thickness of each floor slab, and sufficient margin is allowed for the weight of concrete in the slab itself. The total dead load per panel so obtained serves as the basis of calculations by which the dimensions of the floor joists are determined, and the collective weight of slabs and floor joists, transmitted to the girders, represents the external load to be carried by the latter members. Their proportions are then calculated with due regard to the dead weight of the material, and the general design of the floor is finished, apart from practical considerations and details leading to complications of any kind.

It would be perfectly easy to adopt a similar process in connexion with the design of concrete-steel floors, but the inevitable result would be a very considerable excess of strength and consequent waste of material.

The ordinary steel and concrete floor is so constructed that the concrete is practically split up into a number of detached and non-continuous units, none of which can be treated more favourably than as a beam supported at each end, or as a slab more or less efficiently supported along each side. Similarly, the steel members have to be separately considered as individual details.

In a properly designed concrete-steel floor the conditions are quite different. Such a floor is really a homogeneous structure, and may be said to constitute a single unit, or one continuous slab—with stiffening ribs—extending throughout the whole area covered.

As a matter of fact, however, if the steel skeleton of an ordinary concrete floor is efficiently filled in and covered with concrete at the top and bottom, a noticeable increase of strength is secured. This effect was observed in the early days of concrete-steel construction, and a step towards the more economical design of floors was made by employing T-bars instead of I-bars for joists, and in placing these joists so that the two arms of each T-bar formed a tension flange, situated a few inches below the under surface of the intervening concrete. The projecting parts of the joists were, of course, completely covered with concrete during the construction of the floor, and the result was a continuous floor slab with a number of projecting beams. By adopting this type of construction it was found that a considerable saving of metal could be effected, and that the thickness of the concrete between the beams could be materially reduced. Subsequent experiments, and experience gained in practical work, ultimately led to the development of still better designed concrete-steel floors, whose successors flourish so abundantly in the present day.

Before looking into the distinctive features of any of the types of concrete-steel flooring at the disposal of the designer, we will briefly trace the evolution of a complete and self-contained floor from a collection of simple beam forms.

In the first place, let us consider a beam of simple concrete in which the neutral axis is midway between the top and bottom surfaces.

Then, in order to preserve a correct balance between the resistance of the compression and tension areas, the sectional area of concrete below the neutral axis must have ten times the sectional area of the concrete above the neutral axis, to compensate for the lower tensile strength of concrete as compared with its compressive strength.

Next, let us assume that instead of increasing the area of concrete in the tension portion of the beam, we add steel reinforcement near the bottom surface. By the employment of a suitable proportion of metal, the resistance of the compression and tension areas can be exactly adjusted, and the form of the cross-section will be a four-sided rectangle.

Proceeding a step further, we will assume that the amount of reinforcement added is greater than that necessary for balancing the tensile and compressive resistance of the two areas in the cross-section of the beam. In such a case the balance of strength can only be restored in one of two ways: (1) By placing reinforcement near the top of the beam; or (2) by increasing the area of concrete above the neutral axis. It is evident, however, that these two alternatives might be combined. Thus, let us take a beam in which the reinforcement in tension is such that, for the proper balancing of resistance, the concrete in compression must be extended in the form of a wide flange, giving a T shape to the cross-section of the beam. If we assume the further addition of reinforcement in the tension area it might be inconvenient or impracticable to increase the width of the compression flange, but a similar effect would be obtained by the application of reinforcing bars near the top of the beam. In the latter event we should have a combination of the two alternatives suggested above.

A little consideration will show that a very wide upper flange, whether of concrete alone, or of concrete with longitudinal rods, would be weak laterally, and might tend to crack or to break off from the main body of the beam. Hence, transverse reinforcement could be added with advantage.

The resulting beam would consequently be of T section with longitudinal reinforcement near the bottom and a network of rods near the top. It is evident, then, that the general proportions of the beam and the width of the compression flange can be varied at pleasure for a given load by corresponding adjustment of the reinforcement. The latitude so given is of considerable value in the design of flooring systems.

We will now consider the effect of employing beams designed in this manner as parts of a homogeneous floor structure.

Let us take one floor panel, in which the main girders are 8 ft. apart and the transverse girders, or joists, are 4 ft. apart.

We assume that by suitable adjustment of the reinforcement the compression flanges of the main girders have been made 4 ft. wide and, say, 4 in. thick. Then, between the centres of two consecutive girders, spaced 8 ft. apart, there will be an interval of only 4 ft., as each of the compression flanges projects 2 ft.

Similarly, it is assumed that the top flanges of the joists are made 2 ft. wide. Consequently the interval between successive joists will only be 2 ft., as the compression flanges account for the other 2 ft. of the distance.

The general result, so far, is that the floor panel considered is complete, with the exception of a series of rectangular spaces, each measuring 4 ft. by 2 ft., and the number of which depends upon the span of the panel. These spaces can be filled in with concrete, and the floor is thereby finished. It will be understood that in practice they would be closed concurrently with the formation of the top flanges of the girders and joists. Practically, therefore, the whole of the floor slab forms the compression flange of the connected system of beams.

Further, assuming the top flanges to be reinforced by longitudinal and transverse rods, it is a natural step to conclude that all these rods should be laid continuously from end to end of the span, and from side to side in the width of each panel. The additional cost of the metal would be quite inconsiderable, and the cost of labour would probably be reduced because the rods would not have to be cut, and the number of separate pieces would be smaller. These rods would then occur at pre-determined intervals in the flanges of the girders and joists, and would also continue across the concrete filling the parts of the floor not covered by the previously defined widths of the flanges. Here we have an additional feature of strength due to the reinforcement of the whole of the floor slab by steel rods running in two directions, and thus binding the construction still more firmly together.

It will also be seen that in a floor designed in the manner here outlined, each of the joists acts as a stiffener for the flanges of the adjoining girders, and that the entire structure is so interconnected that an exact calculation of its strength is practically impossible.

But we have a further element of strength, arising from the action of the various spans after the manner of continuous beams. To develop this action to its fullest extent, reinforcement should be applied as shown by diagram *m* in Fig. 31, and further strength may be added by the formation of concrete haunches on the girders and joists.

No one has yet developed a scientific theory of the strength of concrete-steel floors, and, as the distribution of stresses is so complicated, and the inter-relation of the various constituents is so involved, that it seems unlikely that anything more than approximate rules will ever be available for the guidance of the designer.

One result following the method of construction outlined above, is that floors so made are very much stiffer than steel girder floors with ordinary concrete filling. In this connexion, it may be interesting to give the results of two tests conducted by the engineering department of the Paris and Orleans Railway Company at the Austerlitz and the Quai d'Orsay stations in Paris.

The first test was conducted upon a concrete-steel floor of the Hennebique type, built in the electric sub-station at the Austerlitz railway station. It was calculated to carry a machinery load of 280 lb. per square foot, the clear span was 16 ft., and the floor was subjected for a width of 17 ft. to a uniformly distributed test-load of 420 lb. per square foot. The resulting deflection was then found to be only one-eighth of an inch, without any permanent set.

With the object of comparing the resistance of this floor to shocks with that of steel-girder floors, it was subjected to severe blows from falling weights, and similar tests were applied to a floor at the Quai d'Orsay railway station. The latter floor, built of steel girders and brick arches, was of the same span and had been calculated for the same load as the floor at the Austerlitz station.

A weight of 220 lb. falling upon the concrete-

steel floor from a height of 13 ft. caused a maximum vibration of one-sixteenth of an inch, lasting five-sevenths of a second, whereas a weight of 110 lb. falling from a height of 6 ft. 6 in. upon the steel and brick floor produced vibrations measuring five-sixteenths of an inch and lasting two seconds.

Hence, although the weight falling upon the concrete-steel floor was of twice the value of that falling upon the brick floor, and fell from twice the height, the resulting deflection was only one-fifth of the amount recorded for the latter construction, and the vibrations lasted for only one-third of the time.

Considering these figures in connexion with the dead weights of the floors—62 lb. per square foot for concrete-steel and 100 lb. for steel and brick—it will be seen that a very great advantage is possessed by the former type of construction.

No specific mention has been made in this article of ties for withstanding shear, but our readers will, of course, understand that reinforcement of this kind is equally desirable for beams incorporated in floors as for simple beams of concrete-steel.

GENERAL BUILDING NEWS.

Police Building, Dukinfield.—A new police court and offices were opened at Dukinfield on the 13th inst. The court has been erected by the County Council at a cost of 7,000*l.* from designs of Mr. Beswick, County Architect.

Church, Newchurch, Lancashire.—The foundation-stone of a new church to replace the one at Newchurch, recently burned down, was laid on the 13th inst. The new building, which is to cost 13,000*l.*, has been designed by Messrs. Travers and Ramsden, Liverpool.

Board School, Springhead, Yorkshire.—Some months ago the site was chosen by the Springhead Board for the erection of a school at Shelderslow, near Springhead, and the contract was let to Mr. Squire Oldfield, with Mr. A. J. Howcroft as architect. The foundation-stone has just been laid.

Town Hall, Deptford.—The Mayor of Deptford laid the foundation-stone, on the 14th inst., of a new Town Hall for the borough, which is to be erected on a central site in the New Cross-road. The new building is to cost 30,000*l.* An illustration of the building appeared in our issue for November 1, 1902. The builder was Mr. H. L. Holloway, and the architects Messrs. Lanchester, Stewart, and Rickards.

Post-office, Torrington.—A new post-office is being erected at Torrington by Mr. H. Grant, from plans prepared by Mr. Medland, architect.

Church, Middlesbrough.—The corner-stone of the new Church of St. Michael and All Angels' at Middlesbrough has just been laid. The building is being erected immediately to the north of the Albert Park. The new building is in Waterloo-road. Mr. Wm. Duncan, of Middlesbrough, is the architect for the new building, the tender for the erection of which has been let to Messrs. Bastiman Bros., of Middlesbrough, for 5,430*l.*; but the fittings, etc., will bring up the total cost of the undertaking to fully 6,000*l.* The new church will provide seating accommodation for 500 worshippers.

New Gaiety Theatre, Strand.—This building has just been completed, and the following information will be of interest:—Owing to the disposition of the site, with its two frontages diverging from the circular corner, the position for the chief entrance is naturally at the junction of the Strand and Aldwych. The entrance opens, under the dome, into a circular crush-room, with retiring-rooms and box-office, from which staircases lead right and left up to the grand circle "back." Below the crush-room is the stalls saloon, and above it are the saloons to the grand circle, balcony, and gallery, all following the lines of the crush-room and circular or oval in plan. The entrances and exits to the parts other than the stalls and grand circle are alternately in the Strand and Aldwych. The open colonnade, or loggia, is approached by two staircases from the gallery level. The theatre is to seat, in the gallery, 400; upper circle, 260; dress circle, 172; stalls, 146; pit, 300; private boxes, 48; total, 1,326. Behind the proscenium is a stage, 40 ft. deep, and of an average width of 80 ft., with a mezzanine floor and cellar below. Right and left to the Strand and Aldwych are the stairs leading to the stage exit and entrance, and the dressing-rooms, numbering 29 in all. The flies are provided with a separate gallery for the convenience of the electrician managing the special lighting effects and limes. The "gridiron" is of more than usual working capacity; it is 70 ft. above the stage. The stage, ropes, blocks and drums have been supplied and fixed by Mr. I. N. Lyons. The whole of the facades are executed in Portland stone, with bands of verde antique marble. The internal dome will be constructed of steel and concrete, the external dome being in steel and wood, and covered with copper. The crowning figure is being executed by Mr. Hibbert Binney. The construction generally consists of cement, greystone, and blue lias lime, brickwork and steel, and concrete floors and roof. The floors are almost exclusively finished in cement, and the roofs (of auditorium) with a double layer of asphalt. The steps throughout are granolithic. Scagliola is employed in the columns of the crush-room and foyer, with modelled caps and bases in plaster. The constructional steelwork of the tiers, roofs, and dome has been executed by Messrs. Dennett and Ingle, engineers. The circles are constructed in steel and concrete throughout, and so designed as to carry from wall to wall of auditorium without intermediate supports. The total weight of the three circles when fully loaded is estimated at about 350 tons, and this weight is transmitted to the foundations partly by the brick walls and partly by cast-iron and steel stanchions embedded in the brickwork. The stepped surface of circles is formed in concrete upon steel bearers spaced from 2 ft. to 3 ft. apart, and the ceilings are constructed with metal lathing suspended below the girders and cantilevers, and at such a level as to permit of an unbroken soffit and a clear height of not less than 8 ft. from circle to ceiling. A complete system of high-pressure fire mains and hydrants is installed by Messrs. Merryweather and Sons, both in the auditorium and behind the scenes, and the proscenium is fitted with an improved double thickness asbestos fire-resisting curtain. The system of ventilation is by propulsion, and the ventilating and heating arrangements, by Messrs. James Stott and Co., are in combination. The air supply is all obtained at the roof line, one intake for the auditorium portion and another for the stage. Immediately after leaving each intake the air is passed through a patent revolving air screen, and then driven forward by means of a disc propeller, and passed through heating pipes into a short main duct over the ceiling of the auditorium, and finally enters the auditorium through interstices or openings arranged in the fibrous plaster decorations. For dealing with the gallery, a special fresh air trunk leads away in the roof from the fan-chamber. The stage portion is arranged on similar lines, fresh air coming down from above after being suitably warmed and purified. The heating batteries are furnished with sliding valves that permit the whole of the heat being shut off, or *vice versâ;* the whole of it may be warmed, or, on the other hand, half warm and half cold sent forward, or any intermediate mixture of each, by raising or lowering the dampers in question, without restricting the volume of air. The necessity of hot-water pipes is entirely dispensed with. In designing the electric light installation, the two-circuit system has been installed throughout the theatre, in the auditorium, passages, entrances, and exits, the lamps being installed alternately on two circuits, these being connected through the necessary switchboards and change-over switches to two independent sources of supply, so that the lamps at any moment can be fed either all from one supply or half on each as desired. As a further means of protection, a number of lamps throughout the theatre are being installed, for the purposes of identification, called "police lights," and connected to a third independent system of supply. In the event of the first two supplies failing, there will be sufficient illumination for the public to leave the building in safety. These "police lights" will be used during the daytime for cleaning purposes. The whole of the lamps in the auditorium, passages, etc., are controlled from two points only, the two large switch boards, having a total of about seventy switches, being fitted in chambers leading out of the stalls saloon, where they will be under the control of a responsible official. The wiring is arranged so that in the event of any portion of the light supply breaking down the whole of the lighting of that system can be changed over to another supply. The whole of this work is being carried out by Roger Dawson, Ltd., to the specification of the consulting engineer, Mr. Thomas J. Digby. The auditorium is flanked with twelve private boxes, with arched loggia over. The proscenium is decorated with winged figures and modelling by Mr. W. J. Neatby, and three decorative tympanum panels in oils by Mr. Charles Buchel. Upon either side of this arched opening and in the spandrels are two niches containing figure-subjects of "Music" and "Dancing" by Mr. Hibbert Binney. The mural decorations consist of a material by Rottmans, having a ground work of old rose, with a raised design in gold, cerulean blue, Hooker's green, and permanent red. The decorative plaster work throughout is by Messrs. George Jackson and Sons. The draperies are of pale green, the carpets and seats of similar colour, and specially designed. The retiring-rooms, in the rear of the boxes, are in contrast to the auditorium; the Royal rooms are in the Adam style, with modelled frieze, ceilings, and panelled walls. The crush-room is in the Georgian style, with marble columns, bronze caps and bases supporting a modelled entablature and frieze; the floor is of marble mosaic. The foyer is treated in hardwood, the panels being occupied by portraits of former Gaiety actresses—Nelly Farren, Kate Vaughan, Letty Lind, Sylvia Grey, and Ellaline Terriss. The frieze above is richly gilded, and the modelled ceiling entirely in ivory white. The whole of the decorations of the building have been carried out by Mr. Edward Bell, in accordance with the specification of the architects, who have specially designed and personally supervised all the details of upholstery and general furnishing. Messrs. James Shoolbred and Co. have been entrusted with the order for this section of the work, and have supplied a thick red carpet for the crush-room, the staircases and corridors being covered with a soft velvety Axminster carpet in shades of green. The seats have polished mahogany frames, inlaid with satin wood, into which is worked the number of the respective seats. The covering is of English-made silk brocade. Mr. George Ridout is responsible for the supervision of the whole of the furnishing. All the doors throughout the building are fitted with the Yale locks, supplied by the company of that name. The architects are Messrs. Ernest Runtz and George McLean Ford, and in addition to the general structure, the whole of the decorative work and upholstery is from their designs. The contractor is Mr. Henry Lovatt, of London and Wolverhampton. Mr. Lovatt's foreman on the job is Mr. Bassett. The clerk of works is Mr. D. Davies, who occupied a similar position at the Adelphi, Apollo, and Wyndham's theatres. It is understood that the exterior design of the building was sketched out by Mr. Norman Shaw.

Roman Catholic School, New Ferry.—The foundation-stone of the new St. John's elementary schools and school chapel being erected for the Roman Catholics of the New Ferry district was laid on the 18th inst. The new premises are being constructed on land in Bebington-road, and are intended to accommodate on the ground floor about 350 scholars, and on the upper story, which is to be equipped as a chapel, about 300 worshippers. The school chapel stands well back from the road, the space in front being reserved for the future erection of a church. The site cost 900*l.*, and the present buildings, which are of Ruabon brick, will cost 4,500*l.* The architect is Mr. John Barnes, of Bebington, and the builder Mr. Peter Rothwell, Birkenhead.

Church Buildings, Bethnal Green.—Lieut.-General Lord Methuen visited Bethnal Green recently for the purpose of unveiling the memorial-stone of the building erected in Hereford-street, which is to be utilised as a parish hall and meeting place for the clubs in connexion with the Church of St. Matthew. The building will be of plain brick. On the ground floor there will be two sets of clubrooms, one for boys and one for men. On the first floor will be provided a parish hall to accommodate 400 people, and will be available for a gymnasium, and for meetings, concerts, etc. The estimated cost of the building, which is being erected by Messrs. Perry Bros., under the superintendence of Mr. S. Clifford Tee, architect, is estimated to cost 3,000*l.*

Business Premises, Bristol.—A block of business premises is about to be erected in College-green, Bristol. Messrs. Wilkins and Son are the contractors, and Messrs. La Trobe and Weston the architects. The new buildings comprise new premises for Messrs. Hughes and Son, estate agents, and an extension of Mr. P. E. Gane's furnishing establishment.

City of London Crematorium, Little Ilford.—The foundation-stone of the crematorium at the City of London Cemetery, Little Ilford, Essex, was laid on the 14th inst. The crematorium will contain a hall for the mourners with a waiting-room attached. The catafalque upon which the coffins will rest will be in the centre of the hall, and there will be an antechamber for the attendants between the hall and the cremating chamber. The cremating chamber will be at the rear of the hall, and will be of sufficient size to admit of two cremating furnaces being erected. It is intended to erect only one furnace at the present time, the flue for which will be carried up in the centre of an ornamental tower about 80 ft. in height. A small auxiliary furnace will be placed at the base of the tower for the more perfect combustion of the gases arising from the cremating furnace. The furnace will be attended to from a basement under the cremating chamber. The hall for the mourners will have an open timbered roof, and the interior will be faced with red pressed brick, with an ornamental tiled dado, the floor being paved with ornamental tiles. The crematorium will cost about 7,000*l.*, and will be built from the designs of Mr. D. J. Ross, the Corporation Engineer.

Business Offices, Norwich.—New offices have been erected in Red Lion-street, Norwich.

The premises have been designed in the style of the French Renaissance, freely treated, by Messrs. G. J. and F. Skipper, architects, of Norwich. The building contractor was Mr. J. S. Smith, of Norwich. The terra-cotta was supplied by Messrs. Doulton and Co., Lambeth; electric lighting by Messrs. Park and Son, Lambeth; decorations by Messrs. Trevor, Page, and Co., Norwich.

St. Cuthbert's Church, Kirkby-in-Furness.—The new work to the tower of this church was dedicated on the 16th inst. The present tower was built in 1829, the ancient one having collapsed many years before. It was substantially built, but presented no features of interest. Heavy square battlements were carried up the whole thickness of the walls, leaving no bearing for the roof, which was of very slight construction, and carried on wooden brackets. The belfry window openings were formed with rough pointed arches (a very unusual form in the district), and were filled with wooden frames of poor form, which were wrecked in a gale in the early part of the present year. The work now completed included the stripping of the crumbling roughcast, and repairing the walls; a new roof of substantial construction, and renewal of parapets and cornice; the insertion of tracery windows, provided with oak louvres, under the existing arches of the belfry openings. These are of Late Gothic form, but with sufficient differentiation in the mouldings to distinguish them from ancient work. Small slit windows have been formed to light the clock chamber, and the time is shown on a skeleton dial of copper gilt made to the architect's design by Messrs. W. Potts and Sons, of Leeds. The dressed stonework is from St. Bees (Sandwith) quarries; the walling of local slate rubble. The architect was Mr. J. Standen Adkins, of Kew. The contractors were Messrs. Ashburner, of Dalton-in-Furness.

Thornhill U.M.F. Church, Sunderland.—A new church has been erected in Burn Park-road, Sunderland, by the United Methodists. The new church, which will be known as Thornhill United Methodist Free Church, and the schoolroom and other buildings in connexion with it, occupy a site at the corner of Burn Park-road and Beechwood-street on the newly-opened Thornhill estate, and are in the Perpendicular style. At the corner a tower with a copper spire and vane rises 83 ft. There is a frontage of 130 ft. overlooking the Burn Park, and the whole of the main entrances are in this elevation. Three portals, over which is a five-light window, give admission to the church through an outer and inner porch, the staircase to the gallery being within the tower. The church itself consists of a nave, clearstory, aisles, transepts, and chancel, and an end gallery over the entrance porches. Its seating capacity is for 520 adults, which can be augmented to about 620 as occasion requires. The nave arcades, which are of moulded arches supported by columns with richly-moulded caps and bases, and the chancel arch, are worked in Denwick freestone. The pulpit base is in the same material, the upper part being of Austrian oak. The chancel is raised three steps above the nave level, and has a carved and moulded Austrian oak reredos screen. The choir seat ends and front screens are similarly treated in the same material. The roof is of pitch pine, open timbered. The seats, screens, and gallery front are also in pitch pine. A stained glass memorial window, with "The Ascension" as its subject, has been placed in the chancel, and one of the transept windows is also of stained glass. The windows have been executed by Messrs. Atkinson Brothers, Newcastle-on-Tyne. At the entrance to the church are separate cloakrooms for ladies and gentlemen. The school, which is recessed from the main road by two front classrooms, has accommodation for 300, and there are separate classes for senior and infant scholars. A rostrum is fixed at the end of the school. A corridor is placed at the side of the school, running its whole length, and is recessed for cloaks and hats. The buildings also contain a church parlour, a lecture-hall, and seven vestries. A kitchen vestry is provided. The heating throughout is by hot water carried in pipes and radiators. The whole is lighted by the electric light. The buildings, which have cost about 7,600*l.*, have been designed by, and the work carried out under the supervision of Mr. J. Ezra Miller, and Messrs. Wm. and T. R. Milburn, joint architects, the contractor being Mr. W. B. Cooper and the subcontractors Mr. Digby Nelson, slater; Messrs. Aitken and Austin, plumbers; Messrs. Reid, Ferens, and Co., electrical engineers; Messrs. Austin and Son, painters, etc.; Messrs. C. W. Wilson and Son, leaded glaziers; and the clerk of works, Mr. R. F. J. Carter.

Wesleyan Church, Beamish, Durham.—The foundation-stone of a new Wesleyan church at Beamish has just been laid. The new buildings have been designed by Messrs. Marshall and Tweedy, architects, Newcastle, and are being erected by Mr. William Hall, contractor, Gateshead. The church will accommodate 350 persons, and three vestries will be attached, the whole erection being of stone.

Church, Kilcar, Co. Donegal.—The foundation-stone of the new parish church of Kilcar, County Donegal, has just been laid. The church is Romanesque in style, freely treated. The general walling is of the local freestone from Bavin Quarries, and the nave arcade is of the same. The church affords seating accommodation for some 1,200 persons. It consists of nave, aisles, chancel, two side chapels, sacristies, narthex, and baptistry. The total length is 128 ft., and the width across nave and aisles, 54 ft. The nave is spanned by a barrel vault. The arcade consists of six bays of circular-headed arches carried on circular cut stone columns, with moulded bases, and capitals carved with Irish interlaced ornament. The windows will be fitted with lead lights in Gaelic patterns, made by Messrs. Ward, of Belfast. The roofs will be covered with small, thick, rough grey-green slates, from the Killoloe Quarries. A feature of the west front is the recessed entrance doorway, and the three-light window. The architects are Messrs. Doolin, Butler, and Donnelly, of Dublin, and the contractors are Messrs. Campbell and Son, of Belfast.

The "Frascati" Restaurant, Oxford-street, London.—This building has just been enlarged and improved. Several of the adjoining premises have been demolished to make room for new kitchens and other offices embraced in a scheme of service which includes the provision of a kitchen for the supply of each dining and banqueting-hall. The builders have been Messrs. Godson and Sons, working from the designs and under the direct supervision of the architect, Mr. Charles H. Worley, whilst hot plates and table plate, etc., has been supplied by Messrs. Mappin and Webb.

Restoration of Haxey Church, Lincolnshire.—This church has been reseated, and partially restored. Messrs. Prothero and Phillott, of Cheltenham, have been the architects, and Messrs. Halliday the contractors.

Harbour Trust Offices, Swansea.—Mr. Griff. Thomas, Chairman of the Swansea Harbour Trust and Mayor of Swansea, recently opened the new offices of the Harbour Trust, which have been erected at the corner of Adelaide-street and Somerset-place, Docks, Swansea. A square tower covered by a dome of copper, surmounted by a gilded vane representing a ship of antique design, rises near the angle. The upper part is decorated with sculptured figures representative of "Discovery," "Commerce," "Engineering," and "Navigation," and the pediments of the building are also embellished with seated female figures. The sculpture and carving have been carried out by Mr. Houghton, of Swansea, and Mr. T. Jones, of Cardiff. The contractors are Messrs. Lloyd Brothers, of Swansea, who have erected the buildings from the designs of Mr. Edwin Seward, architect, of Cardiff. The full design has just been completed by the addition of a wing containing further offices, together with new premises for the Capital and Counties Bank. The chief features of the interior are the ranges of offices for the general superintendent, engineer, solicitor, accountant, etc., with their staffs, and the shipping department. The approach lobbies and corridors are fitted with screens in polished teak. A room on the first floor is the board-room, with a waggon-headed roof containing some plaster decoration. Mr. William David has acted as clerk of works.

Public Library and Museum, Banff.—A new library and museum have been erected in High-street, Banff, and will be opened shortly. The new building is two stories in height, and has a frontage of 70 ft. It is built of Berrymuir bluestone with Covesea sandstone facings. The entrance hall has a tile flooring and linings of pitch pine. On the right, entering by the main entrance in High-street, is the library, and on the left the reading-room. A staircase from the entrance-hall leads to the upper story, where the museum specimens have been housed. All the woodwork is of pitch pine. The librarian's office is in the upper story, and the lavatories, cellars, etc, are in the basement. The architect was Mr. C. W. Cosser, Banff, and the contractors were as follows:—Mason, R. Mitchell, Huntly; carpenter, J. Christie, jun.; slaters, J. Hutchinson and Co.; plumber, A. Strachan; plasterer, J. Gibson; painter and glazier, F. Watt, all of Banff.

Public Library, Chatham.—The new Public Library and Reading Rooms, Chatham, erected at a cost of 5,000*l.*, in New-road, near the Luton Arch, were opened recently. The building is a two-story structure, with a basement. The basement contains two class-rooms, 27 ft. 6in. by 17 ft. 6 in. and 23 ft. 6 in. by 17 ft. 6 in. respectively; a lavatory, two unpacking rooms, heating chamber, and stores, etc. On the ground floor is the entrance hall, with the stairs in one corner. To the right and left of entrance hall are the newspaper rooms, 28 ft. 6 in. by 17 ft. 6 in., and 23 ft. 6 in. by 17 ft. 6 in. respectively. Opposite the main entrance is the lending library, 26 ft. by 20 ft. 6 in., and to the right and left of this is the librarian's room, and the ladies' room, the latter being 17 ft. by 14 ft. 6 in. On the first floor on either hand of the staircase are two museums, top lighted, 31 ft. by 24 ft. and 28 ft. 6 in. by 24 ft. The entrance halls are tiled, and the floors and stairs are all of concrete and iron, the concrete floors being paved with wood block paving, polished. The front is executed in red brick, with stone dressings. The works have been carried out under the supervision of Mr. George E. Bond, by Messrs. West Bros., at a total cost of about 5,000*l.*

Orphanage, Aldridge, Staffordshire.—The foundation-stone of a new orphanage to be erected in Aldridge, was laid recently. The new building will cost 1,900*l.*, exclusive of internal fittings, which will amount to 220*l.* It is to be built of brown brick, with red brick and terra-cotta dressings, from the designs of Mr. F. W. Mager, C.E., the work being carried out by Mr. Joseph Myring, contractor, Aldridge. It will provide accommodation for forty children (twenty girls and twenty boys).

MISCELLANEOUS.

American Institute of Architects.—The thirty-seventh annual convention of American architects was announced to be held in Cleveland, Ohio, on October 15, 16, and 17. Among the subjects to be specially considered are:—"The necessity for trained men in future artistic productions," by Mr. Theo. N. Ely; "The advantages of the School of Rome for the study of mural painting," by Mr. John La Farge; "A few words on academic training in sculpture," by Mr. Augustus St. Gaudens; "Rome as a place of schooling for a decorative painter," by Mr. E. H. Blashfield; and "The significance of Rome to the American architectural student," by Mr. Austin W. Lord. There was to be an exhibition of drawings of the group plan for public buildings in Cleveland, presented by the Cleveland Group Plan Commission, Mr. D. H. Burnham, Mr. John M. Carrère, Mr. Arnold W. Brunner.

Painting Public Buildings.—The Association of Master Plasterers and Painters of Manchester and Salford have issued a communication to the members of the local municipal bodies as to the direct employment of labour in the painting and decorating of public buildings. As large employers of labour, employing operative painters the whole year round, in slack times at considerable loss to themselves, the members of the Association feel that the withdrawal of public work and the employment of the men direct is a serious loss to them as a body, against which they have the right to protest. Further, they submit that this is not a monetary gain to the municipal authorities, but rather that the cost is materially increased by the method, and the work not as well done.

Dangerous Structures, Sheffield.—Mr. C. F. Wike, the Sheffield City Surveyor, in his annual report, refers to the large increase in the notices regarding dangerous structures:—The increase is partly due to the action of the police in dealing with persons who have done work to the exterior of buildings abutting upon streets without the provision of adequate protection for the public, but a further and more serious reason for the increase is the large number of dangerous structures which have been dealt with during the year. There have been 627 such cases, as compared with 140 dealt with during the previous year, an increase of nearly 348 per cent. This is, to a certain extent, attributable to insufficient methods of supporting old buildings during alterations, and the rain storms and high winds which have prevailed during the greater part of the past year have also helped. In some cases new machinery has been placed in old buildings not capable of bearing the strain, and in others the fault has been with owners or agents who have not given the necessary attention to repairs. In many cases there is great reluctance to carry out the requirements of the department in this branch of the work—one which involves considerable trouble to the inspectors.

London School Board's Ancient Lights.—At the meeting of the London School Board, on Thursday, the General Purposes Committee reported, with reference to the Board's ancient lights at the Rosebery-avenue School, Gray's Inn-road: "The solicitor brought an action against Messrs. Grover and Wallis, the owners, which action was heard on the 22nd July last, when the defendants, by their counsel, admitted that their new buildings did obstruct the Board's 'ancient lights,' and it was referred by the Judge to an arbitrator, to say what ought to be done by the defendants to give the Board such access of light as they previously enjoyed. The case came before the arbitrator, Mr. Blashill, on the 17th September, who has made his award as follows:—That the defendants do take down so much of their new building as is necessary, in order to comply with the following conditions, viz.: (1) The front wall of their said building next Laystall-street, for a distance of 46 ft. 6 in.

horizontally from the outer face of the wall at the north-west end of the said building not to be of a greater height when completed than 27 ft. 8 in. above the curb or footway in the said street. (2) Except as hereinafter provided, no part of the said building within a distance of 40 ft. 6 in. from the said north-west wall to extend upwards above a plane or slope commencing from the top of the said front wall, and rising to the outer face of the back wall of the said premises at an angle of 30 degrees with the horizon. (3) The defendants to be at liberty to construct above the said slope or plane all necessary chimneys and two dormer windows, but only one of such windows to be nearer than 33 ft. to the outer face of the said north-west wall, which window shall not be nearer than 10 ft. to the frontage line of Laystall-street aforesaid. And neither of such windows to exceed 5 ft. in width, or project in any part more than 5 ft. above the surface of that portion of the roof on which it stands."

YORKSHIRE FEDERATION OF BUILDING TRADES.—Mr. John Dawson, of Huddersfield, President of this Federation, recently presided over a meeting at the Sheffield Building Trades Exchange, Cross Burgess-street. Delegates from the chief towns and centres of Yorkshire were present, amongst whom were Alderman Jessop, Messrs. J. Mallinson, R. Radcliffe, W. Hampshire, G. E. Wilson, J. E. Kaye, and J. C. Stoot, of Huddersfield; J. Pickard, Paul Rhod, G. N. Wilson, and W. T. Ledgard, of Leeds; Councillor Mansfield, of York; Messrs. A. Moulson and R. Raper, of Bradford; Mr. A. W. Sinclair, Scarbro'; Messrs. Marsden, T. Goates, C. Hebblewhite, and G. Stanley, of Hull; Henry Failas, and Councillor W. Judge, Wakefield; Messrs. A. Calverley and F. Jackson, Harrogate; N. Kitchen, Malton; W. R. Thompson, Dewsbury; G. Porter and J. Smith, Barnsley; A. J. Forsdike (president of the Sheffield Master Builders' Association), J. D. Cook and A. Mastin (vice-presidents), T. Roper, H. Hodkin, Councillor J. Longden, Messrs. J. Coward, G. E. Powell, P. Molloy, J. L. Taaffe (secretary), and many other Sheffield members. Various matters affecting the building and kindred trades were discussed, and at the conclusion of the business the party were driven to the works of Messrs. W. S. Laycock, Limited, where, by kind permission of the management, the working of the various up-to-date appliances and machines was fully explained by the secretary, Mr. T. Durman, and the engineer, Mr. Wild. A vote of thanks to the firm was passed on the motion of Mr. J. Dawson and Ald. Jessop. Leaving Messrs. Laycock's works the drive was continued to Dore Moor, thence back to the Building Trades Exchange, where tea was provided for a large company. A vote of thanks to the Sheffield Association for the day's arrangements concluded the gathering.

REREDOS AND ALTAR, CREWKERNE.—Carved oak stalls have been placed in Crewkerne Church and some polished Devonshire marble work in the sanctuary, from the designs and under the superintendence of Mr. Howard Gaye, architect, London. The works were carried out by Messrs. Henry Hems and Sons, of Exeter.

QUEEN VICTORIA STATUE AT CHESTER.—Earl Egerton of Tatton, Lord-lieutenant of Cheshire, recently unveiled a memorial statue of Queen Victoria, erected in the square at Chester Castle, in front of the Law Courts. The memorial takes the form of a bronze statue, executed by Mr. F. W. Pomeroy, of London. The cost has been 1,360*l.*, exclusive of the foundation. The statue represents the erect figure of the late Queen in her robes of State, and holding in her right hand the sceptre, and in her left the orb. On the four sides of the pedestal are the Royal arms (in the front), the county arms (facing the county), the city arms (facing the city), and the shamrock and thistle intertwined, and the rose supporting the crown.

CAPITAL AND LABOUR.

EMPLOYMENT IN SEPTEMBER IN THE BUILDING TRADES.—According to returns furnished by 82 employers' associations whose members are estimated to employ nearly 89,000 workpeople, and by trade unions with an aggregate membership of 199,000, employment in the building trade continues moderate generally, and is worse than a year ago. The returns from employers' associations show that employment was good with 7.7 per cent. of the workpeople reported on, fair or moderate with 48.9 per cent., and dull or bad with 43.4 per cent. Employment with bricklayers is reported as showing a slight improvement on the preceding month. It is better than a year ago. With masons it continues fair. With carpenters and joiners employment has declined somewhat, and is worse than a month and a year ago. The percentage of unemployed trade union carpenters and joiners at the end of September was 4.0, as compared with 2.9 at the end of August, and 3.3 a year ago. With painters employment is dull, and is worse than a month and a year ago. With plasterers employment continues dull. Employment with plumbers shows a slight improvement compared with a month ago. It is, however, rather worse than a year ago. The percentage of trade union plumbers unemployed at the end of September was 6.4, as compared with 7.1 unemployed at the end of August, and 5.9 a year ago. Slaters and tilers report employment as moderate, and worse than a month ago.—*Labour Gazette.*

LEGAL.

A CLAIM FOR LABOUR.

AT the Southwark County Court on Monday, before His Honour Judge Addison, K.C., Edward Elgood, a "fire-proof floor contractor," of Reaston-street, New Cross, sued John Shillitoe and Son, builders and contractors, of College-lane, Bury St. Edmunds, to recover 23*l.* 19s. 7d. for labour, for making fire-proof floors at 80, Borough-road, Southwark.

Mr. Addington Willis was counsel for the plaintiff, and Mr. Craies for the defendants.

The defendants counter-claimed for 2*l.* 13s. 9d.

Mr. Willis said that in November last the defendants were putting up a large building in the Borough-road, and the plaintiff offered to provide the labour for the fire-proof flooring (centreing, concreting, and striking) at 1s. 6d. per super yard. The defendants agreed to this price, and 1s. 7d. per super yard where any deal dove-tail joist strips occurred, and the work was carried out. The foreman then said that the clerk of the works wanted the work floated, and the plaintiff asked 3½d. a yard. This was suggested, and plaintiff suggested grouting. He did a small piece as a sample, but the foreman said it must be floated, and the defendants would do the work. On March 21 the plaintiff's job was finished, and the figures were agreed. He had been paid for the greater part of the work, and applied for the balance, but although he made four written applications he received no reply. Subsequently, however, when the plaintiff's solicitors threatened to issue a writ, the defendants' solicitors wrote that there had been some miscalculation in the measurements, but their client was having the quantities taken out, and if there was anything due to the plaintiff it should be paid.

The plaintiff's solicitors wrote stating that the measurements had been agreed, and the defendants' liability had never been disputed, and the case was proceeded with under Order 14. Then the defendants filed an affidavit in which they swore "The contract entered into between us was for the work described in the particulars endorsed upon the writ, but in accordance with the estimate and specification of which the plaintiff had notice, the work was to be finished with Portland cement floated face. In consequence of the plaintiff's inability to complete with Portland cement floated face, we did this part of the work for him, and the cost of the labour thereon was 26*l.* 13s. 4d., which we claim to deduct from the plaintiff's price of 219*l.* 19s. 7d. Therefore he is in debt to us to the extent of 2*l.* 13s. 9d."

The plaintiff bore out his counsel's statement, and in cross-examination said that had he included floating in his price of 1s. 6d. per super yard, he would have stated it in his written offer. Floating was plasterers' work.

Mr. W. J. Chant, an expert on fire-proof flooring, said the plaintiff's offer to do the centreing, striking, and concreting did not include floating. Custom and the price quoted were against that contention.

George Warby, the defendants' general foreman, said that when he complained that the plaintiff was not bringing up the surface fine enough, Elgood grouted a small piece, remarking that it would cost him (the plaintiff) more. The grouting did not suit, so witness agreed to do the floating, and he followed up the plaintiff's work. When the plaintiff gave his estimate he saw the specification, which set out that the floors were to be floated.

His Honour remarked that to anyone familiar with such work the case was entirely free from difficulty. The plaintiff had brought an expert to tell him that centreing, striking, and concreting did not include floating, but he arrived at that decision before the expert gave evidence. He gave judgment for the plaintiff on the claim and counter-claim, with costs.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

25,036 of 1902.—A. E. LAYTON: *Supports for Use when Laying Gas and Water Mains.*

This invention relates to means for supporting gas and water main pipes lineable whilst their joints are being made, consisting essentially of a screw jack having at the top of its screw and carried thereby a V-shaped part adapted to receive the pipe, said jack being so constructed that the screw and its V-shaped top can be raised or lowered whilst the pipe is carried thereby.

25,199 of 1902.—J. BARNES: *Cornice Pole Joints.*

A cornice pole joint consisting essentially of a coil spring having means for fixing the same to the ends of the two parts of the cornice pole so as to connect them together and permit of their being bent at any required angle with each other.

25,373 of 1902.—E. V. BAILEY: *Means for Attaching Door and other Knobs to their Spindles.*

This invention relates to means for attaching door and other knobs to their spindles, and consists in the employment, in conjunction with an adjustable knob having a socketted or recessed neck, of an annularly grooved adjusting pummel or nut screwing on the spindle and engaging in the socket of the knob, a swinging catch plate pivoted adjacent to a gap in the recessed neck and adapted to be passed through said gap so as to engage the groove or channel of the pummel, and a rose plate having a curved or semi-circular guard and bearing collar adapted to be brought over the catch and prevent the same from rising from its locking position.

3,954 of 1903.—A. J. BOULT (F. C. Hollins): *Window Attachments.*

A window attachment comprising a board removably secured to the stop bead on the window sill between the sides of the window frame, and means permanently secured partly to the board and partly to the lower rail for sliding the bottom rail up and down on the board.

12,510 of 1903.—J. M. BEECH: *Stoves and Fireplaces.*

A stove or fireplace having a fire box and an ash pit, and provided with a feed section having an opening extended continuously from its upper to its lower part, and having three hinged doors one above another for closing said opening, the upper part of the opening affording access to the fire box and the lower part thereof affording access to the ash pit.

16,962 of 1903.—A. F. W. LORIE: *Sash Fasteners.*

In a sash fastener, a handle to a screw perforated with a slanting hole and recessed on opposite sides, a locking pin working in said hole provided with a head having projecting side pieces and adapted to lie in one of said recesses, and a foot adapted to engage a reversible angle piece on the window, and when withdrawn to lie in the other of said recesses.

25,870 of 1902.—J. W. B. WRIGHT and H. DARWIN: *Gas Heating Stoves.*

Means for supporting one or more water receptacles in connexion with a gas heating stove, consisting of a bracket or brackets pivotally mounted thereupon, said bracket or brackets being arranged to carry a receptacle or receptacles for the water.

20,720 of 1902.—J. ADAMS: *Combined Cramp and Appliance for Cutting Mitres.*

This consists of a double cramp and spring mitreing machine, for use in picture framing, joinery work, and the like. Two vertical brackets are provided upon a flat metallic bed, which vertical brackets form a guide for the saw. Two pivoted arms are provided on the metallic bed, and are held in position by thumb screws, while two pivoted brackets are fixed to the bed with screws passed through them, so that by these means the work can be cramped to any angle.

24,865 of 1902.—W. W. PILKINGTON and W. R. ORMANDY: *Insulating Substances for Cables, Wires, and other Electrical Devices.*

The manufacture and use of insulating substances for cables, wires, and other electrical devices, whether as troughs or tubes, as filling material or as an insulating flexible coating for insulated wires and the like, formed of pitch and graded mineral matter, starting with an impalpable powder with or without sand, resins, tars, or oils.

25,405 of 1902.—J. HOLROYD and R. BOND: *Machine or Apparatus for Dressing, Abrading, or Brushing Glazed or other Bricks in the Clay State.*

A machine for dressing, abrading, or brushing glazed or other bricks in the clay state, consisting of a frame having a driving shaft carrying one or more face plates provided with roughened metallic working surfaces.

26,283 of 1902.—J. BULEY: *Automatic Apparatus for Regulating or Controlling the Temperature of Water Supplies for Baths and other purposes.*

An apparatus for regulating or controlling the temperature of water supplies for baths and other purposes, which consists of a regulating chamber through which the mixture of hot and cold water is led on its way to the bath or other place where it is to be utilised, a tube or other vessel contained within the said regulating chamber, a collapsible and expansible chamber communicating with the said tube or vessel, both tube and cham-

* All these Applications are in the stage in which opposition to the grant of Patents upon them can be made.

ber being charged with air or gas, an equilibrium or other suitable regulating valve in the hot or cold water supply pipe, and means for transmitting motion from the chamber to the said valve.

17,252 of 1903.—G. Moore, jun., and A. D. McEwen: *Means for the Casting of Baths or other Similar Vessels of Aluminium or Alloys of a Similar Character.*

This invention relates to means for the casting of baths or other comparatively large vessels of aluminium or alloys of a similar character, and refers more particularly to the construction and arrangement of the cores for such purpose. It is well known that in aluminium castings the metal when cooling from the molten to the cold, solid state, shrinks very considerably more than in most, if not all, other metals, and also quickly, and consequently it is found that in castings for baths and the like vessels, unless the cores are specially constructed, so as to yield to the contracting pressure, the metal is apt to be torn under the shrinkage. It is also desirable for economy and simplicity of workmanship to make such cores of green sand; but when these are made in the ordinary manner they are too solid in their character to permit of the shrinkage of the aluminium without injury to it. In the present invention the cores are constructed by making a series of partition pattern plates, placed longitudinally or transversely or both, which are laid in the core box or its equivalent, which are afterwards removed so as to leave a number of spaces, by which the said core may readily collapse when under the shrinkage action of the metal.

25,339 of 1902.—D. Sinclair: *Radiators for Heating Buildings.*

This invention relates to an independent self-contained radiator, composed of top and bottom chambers, a row or series of hollow upright columns for connecting said chambers together, one or more gas burners, electric heaters, or the like placed underneath or with the upright columns, baffle plates and partitions so arranged in the upper and lower chambers respectively to ensure the fluid passing in opposite directions through the columns alternately, and finally returning it to be reheated through the bottom chamber of the base to a point in the column over the gas burner. Narrow communicating spaces are so arranged between the columns that while the bulk of the fluid follows a circuitous course, there is a certain movement of the heating medium through these spaces across the radiator which accelerates the speed at which the radiator is heated without interfering with the circulation of the bulk.

MEETINGS.

FRIDAY, OCTOBER 23.

Sanitary Institute (Lectures for Sanitary Officers).—Professor R. Elsey Smith on "Sanitary Building Construction and Planning; Soil and Local Physical Conditions." 7 p.m.

Glasgow Technical College Architectural Craftsmen's Society.—Messrs. A. H. Morton and G. H. Gibson on "Reinforced Concrete." 8 p.m.

Junior Institution of Engineers.—Annual General Meeting at the Westminster Palace Hotel. 8 p.m.

SATURDAY, OCTOBER 24.

Sanitary Institute (Demonstration for Sanitary Officers).—Inspection at Charing Cross Hospital new buildings. 3 p.m.

Incorporated British Institute of Certified Carpenters.—Visit to the Crossness Outfall, 3.30 p.m. Nearest station, Abbey Wood, South-Eastern Railway.

MONDAY, OCTOBER 26.

Sanitary Institute (Lectures for Sanitary Officers).—Professor R. Elsey Smith on "Ventilation, Warming, and Lighting." 7 p.m.

TUESDAY, OCTOBER 27.

Institute of Sanitary Engineers, Ltd. (Lectures in Practical Sanitary Science).—Mr. R. Horton on "Details of Plumbers' Work, House Drainage and Sanitary Appliances." 7 p.m.

WEDNESDAY, OCTOBER 28.

The Architectural Association.—Conversazione, to be held at the Royal Institute of Painters in Water Colours, Piccadilly, W. 8 p.m.

Auctioneers' Institute (Hamilton House, Victoria Embankment).—Inaugural address by the President, Mr. J. H. Townsend Green. 7.45 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—(1.) Inspection of Canal Boats, arranged by Dr. R. Dudfield. (2.) Mr. W. H. Maxwell on "Sanitary Appliances." 7 p.m.

THURSDAY, OCTOBER 29.

Institute of Builders.—Dinner, the "Walnut Rooms," Grand Hotel, Charing Cross. 6.30 p.m.

Carpenters' Company, London Wall (Lectures on Sanitary Building Construction).—Mr. H. D. Searles-Wood on "Site, Foundations, and Sanitary Requirements of a Building." 7.30 p.m.

FRIDAY, OCTOBER 30.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. W. H. Maxwell on "House Drainage." 7 p.m.

SATURDAY, OCTOBER 31.

Sanitary Institute (Demonstrations for Sanitary Officers)—Inspection of a House in Stoke Newington. 3 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

October 8.—By Walter Ludlow & Briscoe (at Birmingham).

Packwood, Warwick.—Various enclosures, 26 a. 3 r. 1 p., f. £1,195
Lapworth, Warwick.—Lapworth Close, 6 a. 0 r. 38 p., f. 610
Birmingham, Warwick.—238, 242, 244, and 246, Belgrave-st., f., w.r. 129*l.* 7s. 1,260

October 9.—By A. Dowell (at Edinburgh).

Newtyle, &c., Forfar.—The estates of the late Earl of Wharncliffe, 2,544 a. (in one lot) 55,000

By Walker Barnard (at Stratford-on-Avon).

Tysoe, Warwick.—Harbury Leys Farm, 176 a. 0 r. 32 p., f. 6,000

October 10.—By Dowsett, Knight, & Co. (at Colchester).

West Mersea, Essex.—May Day's Farm, 152 a. 1 r. 39 p., c., y.r. 75*l.* 1,000

October 12.—By Leopold Farmer & Sons.

Maida Vale.—256 and 258, Portsdown-rd., u.t. 58 yrs., g.r. 19*l.* 10s., e.r. 120*l.* 910
Brondesbury.—79, 91, and 96, Brondesbury Villas, u.t. 61½ yrs., g.r. 31*l.* 10s., y.r. 160*l.* 1,510

By Grogan & Boyd.

Hyde Park.—6, Aldford-st., u.t. 82 yrs., g.r. 112*l.*, p. 18,000

By Long & Sons.

Chiswick.—Paxton-rd., &c., f.g.r. 55*l.*, reversion in 73 yrs. 1,490
26 to 30, Bennett-st., f., w.r. 68*l.* 18s. 480
8 to 12, Furze-st., f., w.r. 71*l.* 10s. 480
49, Paxton-rd., f., w.r. 26*l.* 13s. 390

By Fred Varley & Son.

Holloway.—98, Brecknock-rd., u.t. 45½ yrs., g.r. 7*l.*, e.r. 60*l.* 375
4, Hungerford-rd., u.t. 39 yrs., g.r. 8*l.* 8s., e.r. 55*l.* 400
Harringay.—22, Lothair-rd. South, u.t. 72 yrs., g.r. 6*l.* 10s., e.r. 38*l.* 365

By Weatherall & Green.

Chiswick.—21 to 29 (odd), Spencer-rd., f., y.r. 255*l.* 2,685
Spencer-rd., f.g.r. 20*l.*, reversion in 62 yrs. 505
Fernhurst, &c., Sussex.—Moses Hill Farm, 147 a. 1 r. 0 p., f. 13,000

October 13.—By Debenham, Tewson, & Co.

Mitcham Common, Surrey.—Croydon-rd., The Ravensbury Arms, b.-h., and six cottages adjoining, area 1¼ a., *f.*, y.r. 120*l.* 2s. 4,050
Hammersmith.—16 to 22 (even), Southerton-rd., u.t. 62¾ yrs., g.r. 26*l.*, y.r. 188*l.* 10s. 1,370
Holloway.—40, Arthur-rd., u.t. 39 yrs., g.r. 6*l.* 6s., y.r. 40*l.* 415
Stoke Newington.—27, Rectory-rd., u.t. 73¼ yrs., g.r. 10*l.*, y.r. 45*l.* 380

By C. & H. White.

Stockwell.—56, Hargwynne-st., u.t. 61 yrs., g.r. 5*l.* 5s., y.r. 36*l.* 8s. 250
South Lambeth.—44, Heyford-av., u.t. 84 yrs., g.r. 8*l.* 10s., w.r. 57*l.* 4s. 390
Greenwich.—Diamond-ter., l.g. rents 45*l.* 5s., u.t. 17½ yrs., g.r. 8*l.* 250

By Andrew Young.

Holborn.—Southampton-row, an island plot of land, area 2,545 ft., building lease for 80 yrs., let at per annum 620

By Nott, Cartwright, & Etches (at Slough).

Burnham, Bucks.—2 to 9, Alma-row, f., w.r. 72*l.* 16s. 725
2 to 10, Chapel-st., f., w.r. 81*l.* 10s. 1,020
Chapel-st., freehold building site, with farmyard and buildings 200
High-st., freehold building site 155
High-st., The Alma, b.-h., f., y.r. 40*l.* 1,365

By G. B. Hilliard & Son (at Witham).

Witham, Essex.—Newland-st., nine freehold houses, shop, and cottage, y.r. 248*l.* 18s. 3,900
Newland-st., a freehold workshop, y.r. 10*l.* 135
Newland-st., The Constitutional Club, f., y.r. 20*l.* 300
Bridge-st., Croft House, f., y.r. 26*l.* 490
Bridge-st., &c., thirty-three freehold cottages, y.r. 233*l.* 2s. 1d. 3,025
Howbridge Hall-la., freehold garden ground, 1 a. 0 r. 2 p. 145
Brick Kiln Farm, 20 a. 0 r. 1 p., f. 500
Witham Mead, &c., 11 a. 1 r. 7 p., f. 570
Jackson's Farm, 7 a. 2 r. 27 p., f. 300
Hatfield Peverel, Essex.—Knowles Farm, 92 a. 3 r. 29 p., f., y.r. 75*l.* 1,400
Kelvedon, Essex. — Church-st., four freehold villas, f., y.r. 62*l.* 920

By J. C. Platt (at Hammersmith).

Hammersmith.—79 to 87 (odd), Banim-st., u.t. 72 yrs., g.r. 17*l.* 10s., w.r. 117*l.* 750
1 and 2, Banim-ter. (S.), u.t. 72 yrs., g.r. 9*l.* 10s., y.r. 95*l.* 890
Banim-st., a piece of land, u.t. 72 yrs., g.r. nil ... 145
Shepherd's Bush.—277, Goldhawk-rd., u.t. 40½ yrs., g.r. 10*l.*, e.r. 85*l.* 860

October 14.—By H. Donaldson & Son.

Dalston.—50 and 56, Parkholme-rd., u.t. 33 yrs., g.r. 5*l.* 10s., y.r. 68*l.* 615
1, 5, and 7, Wilton-rd., u.t. 33 yrs., g.r. 9*l.*, y.r. 103*l.* 1,020
Hackney.—3 and 5, Spurstowe-rd., u.t. 56 yrs., g.r. 11*l.* 10s., y.r. 72*l.* 740
Islington.—8, Ockenden-rd., u.t. 38 yrs., g.r. 6*l.* 2s., y.r. 42*l.* 465
City-rd.—8 and 11, Coomb's-st., u.t. 21 yrs., gr. 9*l.*, y.r. 66*l.* 450
49 and 51, City Garden-row, u.t. 25 yrs., g.r. 10*l.*, y.r. 60*l.* 400

By Hy. Holmes & Co.

City of London.—15, St. Bride-st., (S.), u.t. 49½ yrs., g.r. 170*l.*, e.r. 600*l.* 5,000

By Knight & Co.

South Kensington.—61, Onslow-gdns., u.t. 46½ yrs., g.r., &c., 43*l.*, p. 2,710

By Towers, Ellis & Co.

Paddington.—15, St. Mary's-ter., u.t. 42 yrs., g.r. 11*l.* 10s., p. 570

By Douglas Young & Co.

Clacton-on-Sea, Essex. — Wellesley Villas, &c., f.g. rents, 11*l.*, reversion in 79½ and 80½ yrs.... 237
Vista-rd., two blocks of freehold building land, including wells and conduit pipes 930
Pier-av., Public Hall Buildings (hall and 7 shops), f., y.r. 510*l.* £10,250

By Lound & Douet (At Masons' Hall Tavern).

Turnham Green. — High-rd., "The Crown and Anchor," p.-h, c., y.r. 65*l.*, with goodwill ... 8,210

By Millar, Son & Co. (At Truro.)

Perranzabuloe, Cornwall.—"Lambourne Castle Farm," 132½ a., f. (including mineral rights) 3,000

October 15.—By Bisley & Sons.

Bermondsey. — 44 and 46, Ambrose-st., u.t. 34 yrs., g.r. 8*l.*, w.r. 80*l.* 12s. 460
Greenwich.—20 and 27, Kemsing-rd., u.t. 90 yrs., g.r. 8*l.*, w.r. 65*l.* 645
Deptford.—20, 22 and 24, Croft-st., u.t. 35 yrs., g.r. 9*l.* 12s., w.r. 83*l.* 4s. 640
12, Hoopwick-st., u.t. 64½ yrs., g.r. 4*l.* 15s. w.r. 41*l.* 12s. 385
5 and 7, Trundley's-rd., u.t. 14½ yrs., g.r. 2*l.* 10s., w.r. 44*l.* 4s. 170
Rotherhithe.—19 and 21, Bestwood-st., u.t. 14½ yrs., g.r. 2*l.* 12s. w.r. 44*l.* 4s. 170
13 and 15, Bestwood-st., u.t. 23 yrs., g.r. 4*l.* 10s., w.r. 46*l.* 16s. 240
6 and 8, St. Helena-rd., u.t. 54 yrs., g.r. 6*l.*, w.r. 63*l.* 14s. 365
10 to 13, Manor-la., u.t. 47 yrs., g.r. 8*l.*, w.r. 71*l.* 10s. 450

By H. J. Bliss & Sons.

City of London.—Wood-st., f.g.r. 60*l.*, reversion in 36 yrs. 2,600
Hackney.—149, Clarence-rd. (S.), f., q.r. 30*l.* 420
8 to 14 (even), Casterton-st., u.t. 74 yrs., g.r. 22*l.*, w.r. 135*l.* 4s. 910

By Harman Bros.

Hoxton.—1 and 5, Fairbank-st. (S.), u.t. 44 yrs., g.r. 21*l.*, y.r. 110*l.* 1,000
Chiswick.—27 and 29, Elliott-rd., u.t. 71 yrs., g.r. 10*l.* 10s., y.r. 58*l.* 670

C. C. & T. Moore.

Mile End.—8 and 17, Morgan-st., u.t. 36 yrs., g.r. 6*l.* 6s., y.r. 88*l.* 695
Poplar.—71, Teviot-st., u.t. 62 yrs., g.r. 4*l.*, w.r. 33*l.* 16s. 300
7, Aberfeldy-st., u.t. 53 yrs., g.r. 4*l.*, w.r. 46*l.* 16s. 325
9 to 15 (odd), Aberfeldy-st., u.t. 44 yrs., g.r. 15*l.* 5s., w.r. 133*l.* 18s. 940
118 to 130 (even), Abbott-rd., u.t. 70 yrs., g.r. 35*l.*, w.r. 258*l.* 14s. 2,015
Upton Park.—52, Raymond-rd., u.t. 83 yrs., g.r. 3*l.* 10s., e.r. 28*l.* 235
Homerton.—8 and 9, Churchill-rd, f., w.r. 72*l.* 16s. 760
21 and 22, Warwick Villas, f., w.r. 41*l.* 12s. 400

By Alfred Squire.

Hampstead-rd.—39, Robert-st. (S.), u.t. 18 yrs., g.r. 18*l.*, w.r. 84*l.* 10s. 305
Holloway.—86, Hampden-rd., u t. 60 yrs., g.r. 4*l.*, w.r. 38*l.* 14s. 225
60, Hampden-rd., u.t. 61 yrs., g.r. 4*l.* 10s., w.r. 41*l.* 12s. 255

By Stimson & Sons.

Camberwell.—Albany-rd, f., stabling and yard, y.r. 30*l.* 300
21, Chiswell-st., f., w.r. 26*l.* 235
Battersea.—36, Savona-st. (and stabling), f., y.r. 25*l.* 310
Canonbury.—9, Grosvenor-rd., u.t. 46 yrs., g.r. 7*l.* 7s., y.r. 46*l.* 450
Hackney.—Harrogate-rd., l.g.r. 163*l.* 4s., u.t. 40 yrs., g.r. 23*l.* 10s. 2,015
Chalk Farm.—Chalk Farm-rd., l.g.r. 61*l.* 18s., u.t. 27 yrs., g.r. 10s. 740
Hornsey.—Canon-rd., f.g.r. 10*l.*, reversion in 70 yrs. 245
Peckham.—Danby-st., f.g.r. 17*l.* 10s., reversion in 72 yrs. 475
Avondale-rd, f.g.r. 31*l.* 10s., reversion in 72 yrs. 850
Copleston-rd., f.g.r. 25*l.* 10s., reversion in 74 yrs. 680
Stoke Newington.—Nevill-rd., l.g.r. 62*l.*, u.t. 58 yrs., g.r. 3*l.* 10s. 1,200
Battersea.—Meath-st., f.g.r. 39*l.* 10s., u.t. 74 yrs. g.r. 10*l.* 630
Old Kent-road.—No. 549, f., e.r. 48*l.* 800
Peckham.—84 to 92 (even) Sumner-rd., u.t. 57 yrs., g.r. 5*l.*, y.r. 162*l.* 1,500

October 16.—By G. W. & H. G. Potter.

Hampstead.—Mount Vernon, "Abernethy House," f., y.r. 60*l.* 920
The Mount, "Bentham House," y.r. 55*l.*; Holly Mount, "Holly Bush House," y.r. 26*l.*, f. 1,100

By E. & S. Smith.

Holborn.—61, Red Lion-st. (S.), f., e.r. 90*l.* 1,000
Barnsbury.—76, Barnsbury-rd., u.t. 14 yrs., g.r. 5*l.*, y.r. 44*l.* 205
Kilburn.—3, Chichester-ter. (S.), u.t. 54 yrs., g.r. 6*l.*, y.r. 40*l.* 305

Contractions used in these lists.—**F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.**

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks.....	1	16	0	per 1,000	alongside, in river	
Rough Stocks and Grizzles	1	13	0	„	„	„
Facing Stocks ...	2	12	0	„	„	„
Shippers	2	5	0	„	„	„
Flettons.....	1	10	0	„	at railway depôt	

PRICES CURRENT (*continued*).

BRICKS, &c.

	£	s.	d.				
Red wire Cuts ...	1	13	0	per	1,000	at	railway depot.
Best Fareham Red	3	12	0	„		„	„
Best Red Pressed Ruabon Facing	5	0	0	„		„	„
Best Blue Pressed Staffordshire ...	4	5	0	„		„	„
Do. Bullnose	4	11	0	„		„	„
Best Stourbridge Fire Bricks	4	8	0	„		„	„
GLAZED BRICKS.							
Best White and Ivory Glazed Stretchers	13	0	0	„		„	„
Headers	12	0	0	„		„	„
Quoins, Bullnose, and Flats	17	0	0	„		„	„
Double Stretchers	19	0	0	„		„	„
Double Headers...	16	0	0	„		„	„
One Side and two Ends	19	0	0	„		„	„
Two Sides and one End	20	0	0	„		„	„
Splays, Chamfered, Squints.....	20	0	0	„		„	„
Best Dipped Salt Glazed Stretchers and Headers	12	0	0	„		„	„
Quoins, Bullnose, and Flats	14	0	0	„		„	„
Double Stretchers	15	0	0	„		„	„
Double Headers...	14	0	0	„		„	„
One Side and two Ends.....	15	0	0	„		„	„
Two Sides and one End	15	0	0	„		„	„
Splays, Chamfered, Squints.....	14	0	0	„		„	„
Second Quality White and Dipped Salt Glazed.....	2	0	0	„		less than best.	

	s.	d.	
Thames and Pit Sand	6	9	per yard, delivered.
Thames Ballast	6	0	„ „
Best Portland Cement	30	0	per ton, delivered.
Best Ground Blue Lias Lime ...	20	6	„ „

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 0d. per yard, delivered.
Stourbridge Fire Clay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

	s.	d.	
BATH STONE—delivered on road waggons, Paddington depôt	1	6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt.....	1	8¼	„ „
PORTLAND STONE (20 ft. average)—			
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2	1	„ „
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2	2½	„ „

	s.	d.	
Ancaster in blocks	1	11	per ft. cube, deld. rly. depôt
Beer in blocks	1	6	„ „
Greenshill „	1	10	„ „
Darley Dale in blocks ...	2	4	„ „
Red Corsehill „	2	5	„ „
Closeburn Red Freestone	2	0	„ „
Red Mansfield „	2	4	„ „

YORK STONE—*Robin Hood Quality.*

	s.	d.	
Scappled random blocks	2	10	per ft. cube, deld. rly. depôt
6 in. sawn two sides landings to sizes (under 40 ft. super.).....	2	3	per foot super. „
6 in. Rubbed two sides Ditto, Ditto.....	2	6	„ „
3 in. Sawn two sides slabs (random sizes) ..	0	11½	„ „
2 in. to 2½ in. Sawn one side slabs (random sizes).....	0	7¼	„ „
1½ in. to 2 in. ditto, ditto	0	6	„ „
Scappled random blocks	3	0	per ft. cube „
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2	8	per ft. super. „
6 in Rubbed two sides Ditto	—		„ „
3 in. sawn two sides slabs (random sizes)	1	2	„ „
2 in. self-faced random flags	0	5	„ „
Hopton Wood (Hard Bed) in blocks	2	3	per ft. cube.
„ „ „ 6 in. sawn both sides landings	2	7	deld. rly. depôt. per ft. super. deld. rly. depôt.
„ „ „ 3 in. do.	1	2½	„ „

SLATES.

in. in.	£	s.	d.		
20×10 best blue Bangor	13	2	6	per 1000 or 1200 at rly. dep.	
20×12 „ „	13	17	6	„	„
20×10 best seconds „	12	15	0	„	„
20×12 „ „ „	13	10	0	„	„
16× 8 best „	7	0	0	„	„
20×10 best blue Portmadoc	12	12	6	„	„
16×8 best blue Portmadoc	6	12	6	„	„
20×10 best Eureka unfading green.....	15	2	6	„	„
20×12 best Eureka unfading green.....	17	2	6	„	„
18×10 „ „	12	10	0	„	„
16× 8 „ „	10	5	0	„	„
20×10 permanent green	11	10	0	„	„
18×10 „ „	9	10	0	„	„
16× 8 „ „	6	10	0	„	„

PRICES CURRENT—(*continued*).

TILES.

	s.	d.		
Best plain red roofing tiles...	42	0	per 1,000 at rly. depot.	
Hip and valley tiles 3	7	per doz.	„	„
Best Broseley tiles.....50	0	per 1,000	„	„
Do. Ornamental Tiles 52	6	„	„	„
Hip and Valley tiles..... 4	0	per doz.	„	„
Best Ruabon Red, brown or brindled Do. (Edwards) 57	6	per 1,000	„	„
Do. Ornamental Do. 60	0	„	„	„
Hip tiles 4	0	per doz.	„	„
Valley tiles..... 3	0	„	„	„
Best Red or Mottled Staffordshire Do. (Peakes) 51	9	per 1,000	„	„
Do. Ornamental Do. 54	6	„	„	„
Hip tiles 4	1	per doz.	„	„
Valley tiles 3	8	„	„	„
Best "Rosemary" brand plain tiles 48	0	per 1,000	„	„
Do. Ornamental Do 50	0	„	„	„
Hip tiles 4	0	per doz.	„	„
Valley tiles 3	8	„	„	„

WOOD.	At per standard.					
	£	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15	10	0	16	10	0
Deals: best 3 by 9	14	10	0	15	10	0
Battens: best 2½ in by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	12	10	0
Battens: best 2½ by 6 and 3 by 6 ...	0	10	0	less than 7 in. and 8 in.		
Deals: seconds.....	1	0	0	less than best		
Battens: seconds	0	10	0	„ „ „		
2 in. by 4 in. and 2 in. by 6 in.....	9	0	0	9	10	0
2 in. by 4½ in. and 2 in. by 5 in. ...	8	10	0	9	10	0
Foreign Sawn Boards—						
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.....	1	0	0	„		
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft.					
	4	10	0	5	0	0
Seconds	4	5	0	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	15	0	3	0	0
Pitch-pine timber (30 ft. average)...	3	5	0	3	15	0
JOINERS' WOOD.	At per standard.					
White Sea: First yellow deals, 3 in. by 11 in.	23	0	0	24	0	0
3 in. by 9 in.	21	0	0	22	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	10	0
Second yellow deals, 3 in. by 11 in.	18	10	0	20	0	0
„ „ 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	15	10	0	16	10	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.	18	0	0	19	10	0
Battens	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.	14	10	0	16	0	0
Battens.....	11	0	0	12	10	0
Third yellow deals. 3 in. by 11 in.	13	10	0	14	0	0
Do. 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	0	0	11	0	0
White Sea and Petersburg:—						
First white deals, 3 in. by 11 in....	14	10	0	15	10	0
„ „ 3 in. by 9 in. ...	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Second white deals, 3 in. by 11 in,	13	10	0	14	10	0
„ „ 3 in. by 9 in.	12	10	0	13	10	0
„ „ battens	9	10	0	10	10	0
Pitch-pine: deals	16	0	0	18	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes ...	33	0	0	upwards.		
Oddments	22	0	0	24	0	0
Seconds, regular sizes	24	10	0	26	10	0
Yellow Pine Oddments...	20	0	0	22	0	0
Kauri Pine—Planks, per ft. cube ...	0	3	6	0	4	6
Danzig and Stettin Oak Logs—Large, per ft. cube	0	2	6	0	3	6
Small „ „	0	2	3	0	2	6
Wainscot Oak Logs, per ft. cube ...	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	7	0	0	8
¾ in. do. do.	0	0	6½	—		
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0	0	9	0	0	11
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	0
Dry Walnut, American, per ft. sup. as inch.....	0	0	10	0	1	0
Teak, per load	17	0	0	21	0	0
American Whitewood Planks—per ft. cube.....	0	4	0	—		
Prepared Flooring—	Per square.					
1 in. cy 7 in. yellow, planed and shot	0	13	6	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	1	6
1 in. by 7 in. white, planed and shot	0	11	6	0	13	6
1 in. by 7 in. white, planed and matched	0	12	0	0	14	0
1¼ in. by 7 in. white, planed and matched	0	14	6	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards ...	0	11	0	0	13	6
1 in. by 7 in. do. do. do.	0	14	0	0	18	0
¾ in. by 7 in. white do. do.	0	10	0	0	11	6
1 in. by 7 in. do. do. do.	0	11	6	0	13	6

6-in. at 6d. to 9d. per square less than 7-in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.					
	£	s.	d.	£	s.	d.
Rolled Steel Joists, ordinary sections	6	5	0 ...	7	5	0
Compound Girders, „ „	8	2	6 ...	9	5	0
Angles, Tees and Channels, ordinary sections	7	17	6 ...	8	17	6
Flitch Plates	8	5	0 ...	8	15	0
Cast Iron Columns and Stanchions, including ordinary patterns	7	2	6 ...	8	5	6

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London					
IRON—	£	s.	d.	£	s.	d.
Common Bars	7	10	0 ...	8	0	0
Staffordshire Crown Bars, good merchant quality.....	8	0	0 ...	8	10	0
Staffordshire "Marked Bars".....	10	10	0 ...	—		
Mild Steel Bars	8	15	0 ...	9	5	0
Hoop Iron, basis price	9	5	0 ...	9	10	0
„ „ galvanised	17	10	0 ...	—		
(*And upwards, according to size and gauge.)						
Sheet Iron (Black)—						
Ordinary sizes to 20 g.	9	15	0 ...	—		
„ „ 24 g.	10	15	0 ...	—		
„ „ 26 g.	12	5	0 ...	—		
Sheet Iron, Galvanised, flat, ordinary quality—						
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g	12	15	0 ...	—		
Ordinary sizes to 22 g. and 24 g.	13	5	0 ...	—		
„ „ 26 g.....	14	5	0 ...	—		
Sheet Iron, Galvanised, flat, best quality—						
Ordinary sizes to 20 g.	16	0	0 ...	—		
„ „ 22 g. and 24 g.	16	10	0 ...	—		
„ „ 26 g.	18	0	0 ...	—		
Galvanised Corrugated Sheets—						
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12	15	0 ...	—		
„ „ 22 g. and 24 g....	13	5	0 ...	—		
„ „ 26 g.	14	0	0 ...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker.....	11	15	0 ...	—		
Best Soft Steel Sheets, 22 g. and 24 g.	12	15	0 ...	—		
„ „ 26 g.....	14	0	0 ...	—		
Cut nails, 3 in. to 6 in.	9	5	0 ...	9	15	0
(Under 3 in., usual trade extras.)						

LEAD, &c.

	Per ton, in London.					
	£	s.	d.	£	s.	d.
LEAD—Sheet, English, 3 lbs. and up	13	17	6 ...	—		
Pipe in coils	14	7	6 ...	—		
Soil pipe	16	17	6 ...	—		
Compo Pipe	16	17	6 ...	—		
ZINC—Sheet—						
Vieille Montagne .....ton	26	0	0 ...	—		
Silesian	25	15	0 ...	—		
COPPER—						
Strong Sheet.....per lb.	0	0	10½...	—		
Thin..... „	0	0	11½...	—		
Copper nails ..... „	0	0	11 ...	—		
BRASS—						
Strong Sheet .....per lb.	0	0	10 ...	—		
Thin „ ..... „	0	0	11 ...	—		
TIN—English Ingots..... „	0	1	4 ...	—		
SOLDER—Plumbers'..... „	0	0	6 ...	—		
Tinmen's ..... „	0	0	8 ...	—		
Blowpipe ..... „	0	0	9 ...	—		

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¼d.	per ft.	delivered.
„ fourths.....	1¾d.	„	„
21 oz. thirds	3¼d.	„	„
„ fourths.....	2¾d.	„	„
26 oz. thirds	3¾d.	„	„
„ fourths.....	3¼d.	„	„
32 oz. thirds	4¼d.	„	„
„ fourths.....	4¼d.	„	„
Fluted sheet, 15 oz.	2¾d.	„	„
„ 21 oz.	3¾d.	„	„
⅛ Hartley's Rolled Plate.....	1¾d.	„	„
1/16 „ „ „	2d.	„	„
¼ „ „ „	2¼d.	„	„

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes or barrels...	per gallon	0	1	9
„ „ „ in drums.....	„	0	2	1
Boiled „ „ in pipes or barrels...	„	0	2	0
„ „ „ in drums.....	„	0	2	4
Turpentine, in barrels	„	0	3	8
„ in drums	„	0	3	10
Genuine Ground English White Lead	per ton	19	0	0
Red Lead, Dry	„	19	0	0
Best Linseed Oil Putty.....	per cwt.	0	8	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon.		
	£	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal.....	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish.....	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum Remittances (payable to J. MORGAN) should be addressed o the publisher of "THE BUILDER," Catherine-street, W.C.

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COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Pavilion and Winter Gardens, Bray	Committee	30*l.*, 15*l.*, 10*l.*, and three of 5*l.* 5*s.*	Nov. 30
Cattle Market, Wakefield	Governors	50 guineas, 25 guineas	Dec. 1

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Sewers, &c., St. Stephen's-road	Canterbury Corporation	City Engineer, Town Hall, Canterbury	Oct. 27
Sewers and Manholes, Broad Oak-road	do.	do.	do.
Excavators Works, &c., Withernsea, Yorks	Holderness Gas Co., Ltd.	J. Holliday, Civil Engineer, St. Mark's-street, Hull	do.
Road Metal, &c.	Margate Corporation	Borough Surveyor, Town Hall, Margate	do.
Road Metal, &c.	Romford R.D.C.	G. Lapwood, Highway Surveyor, Victoria Chambers, Romford	do.
Street Works, &c.	Salford Corporation	Borough Engineer, Town Hall, Salford	do.
Road Works, Belgrave and Clement-streets	Sowerby Bridge U.D.C.	R. W. Evans, Commercial Bank Chambers, Halifax	do.
Pier Widening Works	Portpatrick &c. Jnt. Railways Com.	J. Thomson, Citadel Station, Carlisle	do
Road Works, St. Andrew's-road	Enfield U.D.C.	R. Collins, Surveyor, Public Offices, Enfield	Oct. 28
Fire Station, Hollings Mill-lane	Sowerby Bridge U.D.C.	R. W. Evans, Commercial Bank Chambers, Halifax	do.
Six Shops and Flats, High-street, Hounslow	do.	W. A. Davies, Civil Engineer, Town Hall Chambers, Hounslow	do.
Waterworks, &c.	Galway U.D.C.	Jas. Perry, Civil Engineer, Galway	do.
Broken Granite Road Metal	Ware (Herts) U.D.C.	G. H. Gisby, Council Offices, Ware	do.
Meter and Governor House	Cudworth (Yorks) U.D.C.	W. W. Hutchinson, Engineer, 10, Pontefact-road, Barnsley	do.
Sheds, &c., Halifax	do. do.	C. H. Petty, Architect, Waterhouse-street, Halifax	do.
Intercepting Sewer, Regent-road	Salford Corporation	L. C. Evans, Town Hall, Salford	do.
Sewerage Works, &c.	Rotherham U.D.C.	J. Platts, Borough Engineer, Town Hall, Rotherham	do.
Sewers, &c., Worting-road	Basingtoke Corporation	F. R. Phipps, Civil Engineer, Town Hall, Basingstoke	Oct. 29
Road Metal, &c. (1,050 tons)	Gravesend Town Council	C. E. Hatten, Court House, Gravesend	do.
Alterations to Bakery, Oakwood, Roundhay, nr. Leeds	do.	J. Charles & Son, 98, Albion-street, Leeds	do.
Street Works, &c., Greg-street	Stockport Corporation	J. Atkinson, Civil Engineer, Town Hall, Stockport	do.
Warehouse, 16 and 18, Bull Green, Halifax	Messrs. W. Conway & Sons, Ltd.	R. Horsfall & Son, Architects, 221, Commercial-street, Halifax	do.
Bandstand Foundation, Cast-iron rails, &c.	Portland U.D.C.	R. S. Henshaw, Engineer, Council Offices, New-road, Portland	do.
Boundary Walls, &c., Penydarren Schools	Merthyr Tydfil School Board	J. L. Smith, Architect, Aberdare	do.
Baths, Beverley-road	Hull Corporation	A. E. White, Civil Engineer, Town Hall, Hull	Oct. 30
Detached Cottage, Sutton Scotney	do.	C. W. Breadmore, 120, High-street, Winchester	do.
Alterations to Chapel, Brawdy, Pembrokeshire	do.	D. E. Thomas, Architect, Haverfordwest	do.
Two Houses, Hanbury-road, Bargoed, Wales	do.	P. V. Jones, Architect, Hengoed	do.
Five Cottages, North Back, Loug Lanes, Bridlington	Mr. E. H. Rudd	A. T. Martindale, Architect, 66, Wellington-road, Bridlington	do.
Alterations to Chapel, Trefgarne Owen, Pembrokeshire	do.	D. E. Thomas, Architect, Haverfordwest	do.
Chimney Shaft at Electricity Works	Holyhead U.D.C.	P. F. White, Engineer, Bangor, North Wales	do.
Rebuilding the Castle Inn, Pantywyll	do.	C. M. Davies, Architect, 12, High-street, Merthyr	do.
*New Central Library	Bristol Libraries Committee	Bernard & Son, 4, St. Stephen's-chambers, Bristol	Oct. 31
Church and Manse, Clonmel, Ireland	Methodist Trustees	Rev. H. Kevin, Clonmel	do.
Purification Works, Asquith B. Dyeworks, Sowerby B.	do.	Spinks & Pilling, Engineers, 20, Park-row, Leeds	do.
Macadam Road Metal (4,000 tons)	Bexhill Corporation	G. Ball, Civil Engineer, Town Hall, Bexhill	do.
Wharf (300 ft. long)	Wick (N.B.) Harbour Trustees	J. Barron, Civil Engineer, Aberdeen	do.
Alterations to Boardroom at Workhouse	Christchurch (Hants) Guardians	A. Druitt, Boardroom, Workhouse, Christchurch, Hants	do.
Reservoir, &c., Bovey Tracy, Devon	Newton Abbot R.D.C.	Fox & Tatton, Civil Engineers, 5, Victoria-street, S.W.	Nov. 3
Refuse Destructor, Nechells	Birmingham Corporation	Superintendent, Montague-street Wharf, Birmingham	do.
Church, St. Columb Minor, Cornwall	Wesleyans	S. Hill, Architect, Green-lane, Redruth	do.
*Pumping Station, Gas Engines and Pumps, &c.	Portsmouth Borough Council	Borough Engineer, Town Hall, Portsmouth	do.
*Relief Sewer, &c.	do.	do.	do.
*Making-up Roads	Tottenham U.D.C.	Council's Engineer, 712, High-road, Tottenham	do.
Broken Granite (2,000 tons)	Watford U.D.C.	H. M. Turner, Surveyor, 14, High-street, Watford	Nov. 4
*Making-up Roads	Ealing Town Council	Borough Engineer, Town Hall, Ealing, W.	Nov. 5
Parade Extension Works	Bridlington Corporation	E. R. Matthews, Civil Engineer, Town Hall, Bridlington	Nov. 7
*New Hospital, adjg. St. Stephen's Ch., Haverstock Hill	Hampstead General Hospital Com	Young & Hall, 17, Southampton-street, Bloomsbury, W.C.	Nov. 9
*Branch Library, Lower Sydenham	Lewisham Public Libraries Com.	E. Wright, Town Hall, Lewisham	Nov. 10
do.	do.	J. R. Vining, 89, Chancery-lane, W.C.	do.
*Additions, Ordnance Survey Office, Southampton	Commissioners of H.M. Works	H.M. Office of Works, Storey's Gate, S.W.	do.
Government Offices, Leicester	do.	Registrar, County Court, Leicester	do.
*Telephone Exchange, Engineer's Office, &c., Manchester	do.	The Secretary, H.M. Office of Works, Storey's Gate, S.W.	Nov. 11
Well Works at Schools, Ashford, Middlesex	Managers, W. London School Dist.	G. Midgley Taylor, 27, Great George-street, S.W.	Nov. 12
*New School, Manor-road, Liscard	Wallasey Education Authority	E. Kirby, Architect, 5, Cook-street, Liverpool	Nov. 14
Carriageway and Tunnel under Thames, Rotherhithe	London County Council	Engineers' Department, County Hall, Spring Gardens, S.W.	Jan. 19, '04
*Cleaning, Painting, &c., Assize Courts	Manchester Assize Courts Com'tee.	J. D. Harker, Architect, 78, King-street, Manchester	No date.
Chapel Works at Cemetery	Pinner Burial Board	Harrison & Ward, 66, Victoria-street, S.W.	do.
Extension of Water-Main at Asylum	Ipswich Corporation	E. Buckham, Borough Surveyor, Town Hall, Ipswich	do.
Sanitary Work to Premises, Steel-street, Ulverston	do.	J. W. Grundy & Son, Brogden-street, Ulverston	do.
Seventy Rods of Brickwork	do.	Barnett & Brotchie, 68, Salisbury-road, West Kilburn, N.W.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Applications to be in
*Clerk of Works	Chiswick U.D.C.	3*l.* 10*s.* per week	Oct. 29
*Engineering Assistant	Finchley U.D.C.	42*s.* per week	Nov. 4

Those marked with an asterisk (*) are advertised in this Number. *Competition*, iv. **Contracts**, iv. vi. viii. & x. *Public Appointments*, xvi.

TO CORRESPONDENTS.

M. T. K. (Below our limit).—W. C. H.—J.S.M. (Amount should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ASCOT (Berks.).—For alterations to the Queen's Hall, for the County Council. Mr. Joseph Morris, County Surveyor, Broadway-buildings, Reading. Quantities by Surveyor:—

Burfoot & Son	£3,995 0	E. C. Hughes	£3,223 17
G. H. Tucker	3,787 0	W. Hawkins	3,178 0
F. Newberry	3,595 0	F. Pizzey	3,150 0
H. Charman	3,400 0	G. Brown	3,144 0
McCarthy Fitt	3,379 0	W. Watson, Ascot*	3,100 0
Cox & Sons	3,303 10	Bennett & Sons	2,800 0
I. B. Seward	3,247 0		

[County Surveyor's estimate, £3,121 4*s.* 11*d.*]

BARNSLEY (Yorks).—For the execution of road works, New-street, for the Dodworth Urban District Council. Mr. P. A. Hinchliffe, architect, 14, Regent-street, Barnsley:—

C. F. Lawton	£195 0 0	J. Hood	£179 0 0
P. Dalby	193 0 0	Higham & Sons	170 0 0
B. Roberts	192 0 0	H. Bower	169 14 2
G. Haigh	190 0 0	G. H. Burrows	166 8 4
E. R. Taylor	184 0 0	W. Schofield, Summer-lane, Barnsley*	156 0 0
C. W. Squire	182 0 0		
J. W. Hampson	180 0 0		
G. F. Brown	179 0 0		

BIDEFORD (North Devon).—For the erection of Municipal buildings and library, for the Corporation of the Borough of Bideford. Mr. Alfred J. Dunn, architect, 86, Colmore-row, Birmingham, and 31, St. Michael's-square, Gloucester:—

Forse & Sons	£9,195 0	Collins & Godfrey	£7,196 0
Woolaway & Sons	9,150 0	Westcott, Austin, & Co.	6,700 0
Long & Sons	7,999 0	Elles & Son	6,300 0
Hayward & Wooster	7,857 0	H. Glover, Bideford	6,215 10
Smith & Pitt	7,560 0		

CHEADLE (Staffs).—For lay ing sewers, &c., Caverswall-lane, Blythe Bridge, for the Rural District Council. Mr. F. T. Inskip, surveyor, Cheadle :—

T. Peacock	£576 0 0	T. Tucker	£228 2 2
Langley Bros.	239 4 6	F. Barke	220 0 0
W. Williams	244 0 0	Bridgett & Hand	182 0 0
F. Woolton	235 0 0	Alcock, Cheadle*	175 0 0

DUBLIN.—For the construction of a pumping station, Pigeon House-road, for the Corporation. Mr. G. Chatterton, C.E., 6, The Sanctuary, Westminster :—

J. & W. Stewart, Ltd.	£34,600	H. & J. Martin, Ltd., Dublin and Belfast*	£29,466
J. & P. Good, Ltd.	32,500		

EBBW VALE (Mon).—For the execution of street works, Newchurch (Contracts 1, 2, and 3), for the Urban District Council. Mr. T. J. Thomas, Town Surveyor, Council Offices, Drillground, Ebbw Vale :—

Contract No. 1.—Drysiog-street Improvements.

W. Brown, Merthyr Tydfil £462 15 1

Contract No. 2.—Newchurch Drainage.

W. Mills, Ebbw Vale 106 9 0

Contract No. 3.—Painting Public Lamps, &c.

J. O. Leary, Ebbw Vale 20 8 0

FAREHAM (Hants.).—For the erection of an engine house, &c., at the County Asylum, Knowle, for the Hants County Council. Mr. W. J. Taylor, County Surveyor, The Castle, Winchester :—

J. Croad	£2,185 0	W. Wallis, Littlehampton*	£1,634 0
Knight Bros.	1,955 10		
Rashley & Son	1,887 0		

FEATHERSTONE (Yorks).—For the execution of sewerage works, Wakefield-road, for the Urban District Council. Mr. Fredk. B. Rothera, engineer, Council Offices, Featherstone. Quantities by engineer :—

Ives & Co.	£403 0 0	Jonas Totty	£289 17 6
James Benton	349 15 11	J. W. Broadhead	217 2 2
Alfred Gates	269 14 8	George Clements, Featherstone*	206 15 11
Cyrus Birkhill	221 0 6		

GREAT WRATTING (Suffolk).—For the erection of four cottages for the Hon. W. F. D. Smith, M.P. Mr. C. P. Ayres, architect, Watford :—

Wiles & Son	£1,066	W. G. Jarvis	£950
Dupont & Co.	997	Mason & Son, Haverhill*	880
Grimwood & Sons	957		

HALIFAX.—For the execution of road improvement works, Salterhebble-hill, for the Corporation. Mr. James Lord, C.E., Town Hall, Halifax :—

Bower Bros., Church-street, Halifax*... £353 1 1

HASTINGS.—For laying sewers, &c., London-road, St. Helens, for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings :—

Mr. Joseph Harvey, 53, King's-road, St. Leonards*... £535

HESSLE.—For alterations and additions to the Granby Hotel, Hessle, for Mrs. M. Saunders. Messrs. Ansdell & Cox, architects, Hull :—

H. Neal	£946 16 0	W. Parkinson	£881 7 9
G. Houlton	975 0 0	T. Goates	865 0 0
C. Barron	940 0 0	Taylor & Son	860 12 0
F. Hall	900 0 0	T. R. Woods	828 0 0
W. Barton	889 0 0	J. H. Fenwick, Hull*	797 0 0

HOUGHTON-LE-SPRING.—For the execution of sewerage works, Fence Houses, for the Rural District Council. Mr. Wm. Morley, surveyor, 29, Edwin-street, Houghton-le-Spring :—

J. G. Kersley	£842 0 0	J. Watson	£660 0 0
J. W. White	784 0 0	J. Hollings	571 5 9
D. W. Richards	781 14 7	J. McLaren & Son, Gosforth*	559 16 0
J. B. Stott	718 5 7	Tough Bros.	550 19 3
Balmer Bros.	701 12 10		

LLANELLY.—For the erection of a mission church, Pwll, Pembrey, for members of the Established Church. Mr. Cyril A. Jones, A.M.Inst.C.E., Cilymaenllwyd, Llanelly, S. Wales :—

Masonry (Including all Mason's Work, Plastering, and Small Items).

Evans & Sons, Pwll, Llanelly*..... £338

Woodwork and Joinery.

J. Evans 287
Brown, Thomas & John, Llanelly* 198

LONDON.—For new steel cable for Streatham cable tramways, for the London County Council :—

Craddock & Co.	£1,093 15
F. W. Sebtt	885 0
Latch & Batchelor, Ltd.	870 0
Brown & Co. (Bankhall), Ltd.	800 0
Haggie Bros., Ltd., Gateshead-on-Tyne*	697 10

LONDON.—For new mahogany shop front and fittings marble work, and electric lighting at 5, Frognal-parade Hampstead, for J. Richards, Ltd. Mr. T. Wilson, architect, 34, New Bridge-street, E.C. :—

J. Pugh* £657

LONDON.—For alterations and additions at 133, Sydenham-road, Sydenham, for Mr. A. V. Zwanenberg. Mr. T. Wilson, architect, 34, New Bridge-street, E.C. :—

Wheeler	£765	Speechley & Smith	£678
Pugh	715	Pratt*	667

HARROGATE.—For Main Drainage Works. Contract No. 2. Mr. E. W. Dixon, Engineer, 14, Albert-street, Harrogate :—

	Section 1.	Section 2.	Section 3.	Section 4.	Total.
	£	£	£	£	£
John Moffatt	17,980	4,565	8,181	4,344	35,072
S. F. Davidson	17,160	4,434	7,387	3,927	32,909
Hardy & Atkinson	17,531	4,675	7,495	2,686	32,388
Hampton Matthews	11,124	3,476	5,245	3,014	22,861‡
Johnson & Langley	16,294	5,072	7,454	4,378	33,202
Wilson & Sons	16,121	8,243	9,105	5 891	39,362
B. Oxley	16 585	4,596	7,336	3 225	31,805
Hodson & Son	14,938	4,854	7,599	4,124	31,516
Arnold & Co.	15,475	4,886	7,640	4,063	31,200
Parker & Sharp	15 124	4,639	7,347	3,793	30,906
A. Braithwaite	15,192	4,854	7,315	4 144	31,506
Wm. Brigg	16,928	4,864	7,392	3 197	32,382
Rd. Annakin, Harrogate	14,870	3,821	7,606	3 113	29,413*
Bon Firth	15,613	4,490	7,777	4,530	32,412
Breber & Co.	15,323	4,636	7,018	4 213	31,221
T. C. Starkey	15 933	5,880	7,409	4,930	34,184
Kell Bros.	19,579	7,091	10,014	5,258	41,944
Bentley & Loch	15,866	4,771	8,180	4,189	33,507
George Bell	16 369	4,842	7,983	£4,035 £500	33,230
R. H. B. Neal	23,837	6,817	11,256	5,666	49,000
J. S. Dawson	17,093	5 148	8,581	4,179	35,002
Smith & Co.	15,053	5,068	7,571	4,467	32,161
Graham & Son	13,559	4,405	8,643	3,751	35,360
Etheridge & Clark	16 185	4,907	8,001	4,557	33,650
J. & T. Binns	22,170	8,643	11,773	6,367	47,954
George Parsons	16 297	6,029	9,251	4,584	36,161
Wm. & J. Lant	20,876	5,517	8,863	4,952	40,210
Egan & Sons	17,074	4,753	7,715	3,639	33,187

‡ Withdrawn.

LONDON.—For the supply and delivery of lime for the treatment of sewage at the Barking and Crossness outfall works, for the London County Council :—

		Delivered alongside jetty.		Delivered into store.	
		Barking.	Crossness.	Barking.	Crossness.
	Tons.	per ton. s. d.	per ton. s. d.	per ton. s. d.	per ton. s. d.
James J. Dixon	23,800	12 8	12 8	14 2	14 2
L. Sommerfeld	23,800	13 8	13 8	15 2	15 2
Wm. Fletcher*	9,000*	—	—	—	15 3½*
The Associated Portland Cement Manufacturers (1900), Limited*	14,800*	14 0*	—	15 6*	—
	23 800	14 4½	14 4½	15 10½	15 10½
	9,000	—	15 0	—	16 6
G. Albrecht	23,800	14 2	14 2	15 8	15 8
The New Lime Company, Limited	14,800	14 9	—	16 2	—
C. Christopherson & Co.	9,000	—	15 6‡	—	—
Mackay & Davies	9,000	—	20 7	—	—
Current contract prices	—	—	—	15 11	14 6

‡ Subject to no import duty being levied.

MARPLE.—For the erection of ten houses, for the Compstall Co-operative Industrial Society, Limited. Messrs. Garlick & Wyatt, architects, Stockport-road, Marple :—

J. T. Pott	£2,980 0 0
Yarwood	2.965 0 0
John Waine	2,829 0 0
Wilson & Roberts	2,775 0 0
Vessey, Openshaw & Vessey	2,750 0 0
Robinson & Sons	2.747 0 0
George Woodiwiss, Marple*	2,713 0 0
Clayton Bros.	2 650 0 0
Sparrow	2,598 7 4

NAAS (Ireland).—For the erection of sixteen labourers' cottages, for the Rural District Council. Mr. Francis Bergin, B.E., Beechgrove, Kildare :—

J. Taylor, Bannoxtown, Kilnillen	£158 0 each for two cottages.
J. Slattery, Rathasker-road, Naas	153 10 „ „ „
J. Wyse, Bullockpark, Rathmore, Naas	158 0 for one cottage.

NANTYGLO.—For additions to Nantyglo School, for Aberystruth School Board. Mr. R. L. Roberts, architect, Abergarn, Monmouthshire :—

J. Newcombe	£1,095 0	J. Jenkins	£990 0
Smith Bros.	1,060 0	Morgan & Son, Nantyglo*	863 12
W. Jenkins	1,031 0		

NORMANTON (Yorks).—For flagging, kerbing, &c., Forge-street, for the Urban District Council :—

Rodgers & Son, Castleford* £136 12 3

PORTSOY.—For new buildings in Portsoy. Mr. R. B. Pratt, architect, Elgin :—

Masonry.—Gray, Portsoy	£1,030
Carpentry.—Geddes & Son, Portessie	
Plumbing.—H. J. Watson, Banff	
Slating.—Strathdee, Portsoy	
Plastering.—J. Rae, Portsoy	
Painting.—G. Fairweather, Portsoy	

ROTHERHAM.—For the execution of sewers, &c., Whiston-road, Canklow, for the Rural District Council. Mr. B. Hey, surveyor, 29B, High-street, Rotherham :—

Green & Co., Wellgate, Rotherham*..... £186

RAVENSTHORPE (Yorks.).—For additions to schools, North-road, for the Ravensthorpe Congregational Church Trustees. Messrs. Marriott, Son, & Shaw, architects, Church-street, Chambers, Dewsbury. Quantities by architects :—

Masonry.—Whitehead & Sons, Ravensthorpe*	£783
Joinery.—J. W. Harrop, Gawthorpe Ossett*	
Ironwork.—Bagshaw & Sons, Batley	
Slating and Plastering.—Albert Shaw, Mirfield*	
Painting.—Brook Jackson, Dewsbury*	
Heating Apparatus.—Unity Wood and Iron Co., Padiham*	

RUNCORN.—For the execution of road works, &c., Dundonald-avenue and Kimberley Drive, for the Rural District Council. Mr John Swinton, surveyor, 19, Cliff View, Stockton Heath, near Warrington :—

	Dundonald-avenue.	Kimberley Drive.
Josiah Dale	£495	£288
Frank Hayes	465	306
Frank Warburton	444	297
F. W. Wright	381	246
F. Mitchell & Son	380	265
Garner Owen	378	242
Bennie & Thompson	376	249
Thos. Stringer, Warrington*	375	244

ST. BUDEAUX.—For the Crownhill and Honicknowle sewer works, for Plympton St. Mary Rural District Council. Mr. F. A. Clark, surveyor, 83, Old Town-st., Plymouth :—

H. Stanbury	£6,469 0 0	A. N. Coles	£4,849 12 4
T. Roberts	5,546 0 0	H. J. Allen	4,848 0 0
Davis, Ball & Co.	5,350 0 0	Smith & Son	4,829 15 0
Jn. Shaddock	5,339 0 0	M. Bridgeman	4,721 18 7½
J. & J. Binns	5,297 0 0	C. J. Payne	4,649 19 9
R. H. B. Neal	5,240 0 0	W. C. Shaddock	4,647 8 0
J. C. Ambrose	5,200 0 0	W. J. Stevenson	4,640 0 0
C. Duke	5,075 0 0	E. Pike	4,412 0 0
Pearce Bros.	5,073 0 0	Steel & Pearce, Plymouth*	4,032 18 3
T. Shaddock	4,977 0 0		

SHEFFIELD.—For the erection of eight dwelling houses, stabling, &c., in Coombe-road, Crookes, for Messrs. G. & J. W. Lister. Messrs. Hall & Fenton, architects and surveyors, 14, St. James'-row, Sheffield. Quantities by the architects :—

A. Bradbury	£3,344 0	R. Charlesworth	£2 363 0
H. Watkinson	3,048 10	W. Ainsley	2 353 0
H. White	3.037 0	G. Vaughan	2,350 0
Roper & Sons	2,900 0	M. Hancock, 71, Roebuck-road*	2,335 0
J. S. Teanby	2,850 0		
M. A. Earl	2,600 0		

[See also next page.

SOUTHWOLD (Suffolk).—For the erection of business premises, High-street, for Mr. F. Esthaugh. Mr. Arthur Pells, surveyor, Beccles, Suffolk :—

		Included for Decorations.
Hurren	£2,085 0 0	£45 0 0
Gibbs	1,995 0 0	29 10 0
Scales & Robins	1,800 0 0	16 0 0
Thompson	1,796 1 2	28 0 0
Youngs	1,724 0 0	30 0 0
Gunton & Palmer	1,719 17 0	34 12 3
Boddy & Son	1,711 0 0	31 13 8
Fowler	1,700 0 0	35 18 9
Thurman	1,698 0 0	30 0 0
Grimwood & Son	1,693 0 0	30 6 11
West	1,690 0 0	31 0 0
Smith	1,680 0 0	27 12 11
Hawes	1,650 0 0	31 10 0
Allen & Son, Southwold*	1,580 0 0	40 0 0
Gaze	1,544 15 0	30 0 0

STOCKPORT.—For the execution of street works, Harvey and Apsley-streets, for the Corporation. Mr. John Atkinson, C.E., Stockport. Quantities by the engineer :—

Gosling & Stafford	£1,266 5 2
W. H. Eva	1,235 8 6
P. D. Hayes, Old-road, Stockport*	1,225 16 9

STOWMARKET (Suffolk).—For the execution o drainage works, &c., Lime Tree-place, for the Urban District Council. Mr. G. W. Lingwood, surveyor, Station road, Stowmarket :—

Bradshaw & Co.	£165 0	Scales & Robins	£113 10
E. & S. Flummer	145 0	Murray & Sherwin	105 0
G. Burgoyne	119 3		

WALDERSHARE.—For alterations and additions to schools and alterations and additions to Minacre farmhouse, &c., for the Right Hon. the Earl of Guildford. Messrs Fry & Miller, architects, Cannon-street, Dover :—

J. E. Turner	£1,700 15	Hayward & Paramor	£1,232 0
Austen & Lewis	1,413 11	Lewis & Sons	1,182 11
Denne & Son	1,317 0	Warren & Son	1,163 0
T. T. Denne	1,254 0	W. Bromley, Dover*	1,157 0

WALSALL.—For the execution of road works, Borneo-street, for the Corporation :—

James Atkins, Walsall*	£305 14 6

WATFORD.—For additions to the receiving wards at the Watford Union Workhouse, for the Watford Board of Guardians. Mr. C. P. Ayres, architect, Watford :—

Jesse Mead	£689	H. Brown	£590
R. L. Tonge	687	H. B. Watkins	579
Tyler & White	629	Clark Bros.	579
G. & J. Waterman	607	Clifford & Gough	569
C. Brightman	597	W. King, Watford*	550

WATFORD.—For the erection of new farm buildings at Langleybury, for Mr. E. Henry Loyd. Mr. C. P. Ayres, architect, Watford :—

G. Darvill	£3,000	C. Brightman	£2,822
J. Darvill	3,968	Bracey & Clarke	2,830
Webtter & Cannon	2,985	Honour & Son	2,759
Mayne & Son	2,925	Clifford & Gough	2,747
G. Wiggs	2,896	H. Martin	2,740
H. Brown	2,895	A. Timberlake, Kings Langley*	2,725
Goodchild & Jeffery	2,866		
W. King	2,850		

WATFORD.—For additions to the isolation hospital, for the Watford Joint Hospital Board. Mr. C. P. Ayres, architect, Watford :—

W. Parmeter	£9,150	H. Martin	£7,387
Kellet & Sens	8,865	G. & J. Waterford	7,849
W. J. Bloxham	8,627	C. Wiggs	7,800
Appleby & Sons	8,327	H. Brown	7,793
R. L. Tonge	8,327	Kerridge & Shaw	7,777
J. Ferguson	8,162	J. Darville	7,695
Clifford & Gough	7,999	Webster & Cannon	7,689
H. B. Watkins	7,968	C. Brightman	7,440
Johnson & Son	7,899	Clark Bros., Watford*	7,310

WATFORD.—For rebuilding the Three Tuns, High-street, Watford, for Benskin's Watford Brewery, Limited. Mr. C. P. Ayres, architect, Watford :—

Shopland	£2,977	Clark Bros.	£2,626
Dupont	2,858	Webster & Cannon	2,595
Willmott	2,745	Clifford & Gough	2,588
Martin	2,692	H. Brown	2,587
Goodchild & Jeffery	2,645	C. Brightman, Watford*	2,525
Waterman	2,629		

WIGTON.—For the execution of water supply works, Hesket-New-Market, for the Rural District Council. Mr. W. Brown, surveyor, Kildare, Wigton. Quantities by surveyor :—

Minto & Co., Wigton	£272 7 9

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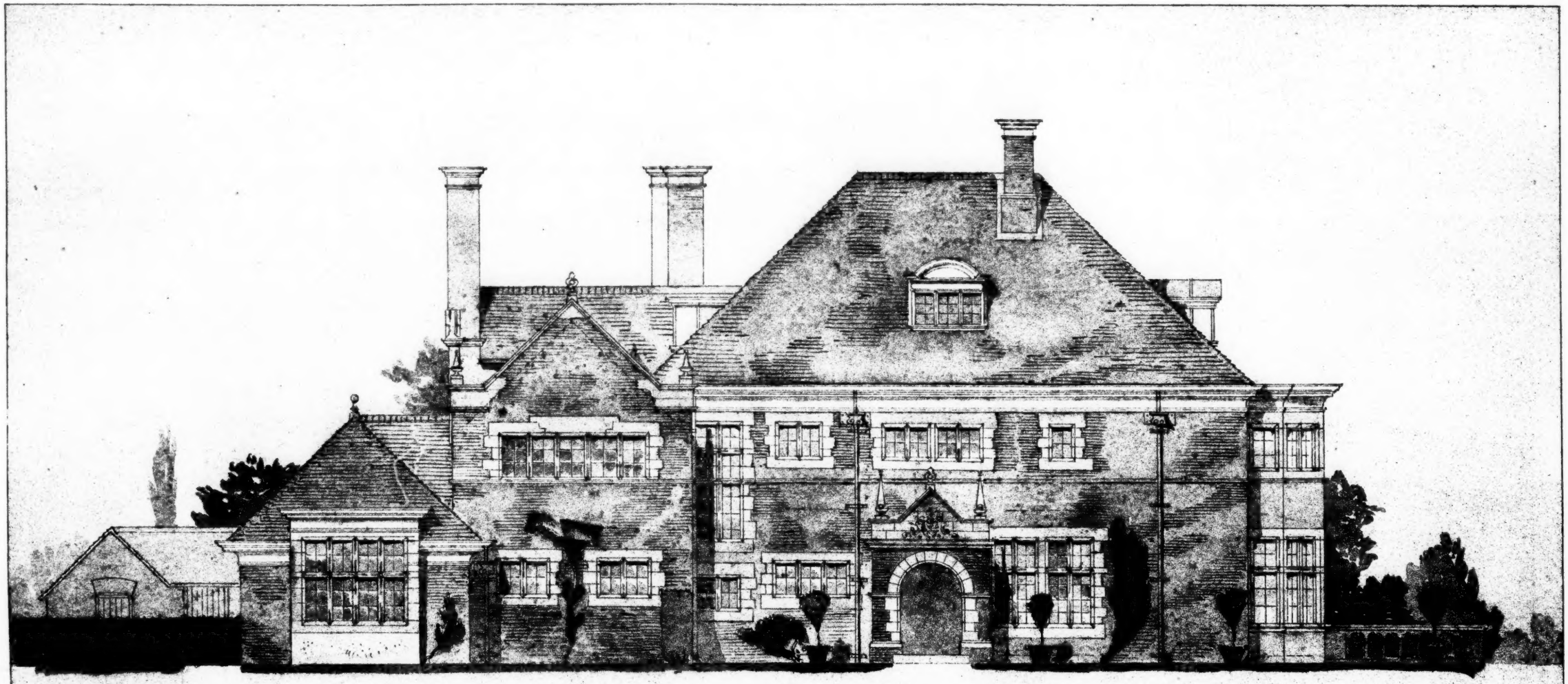

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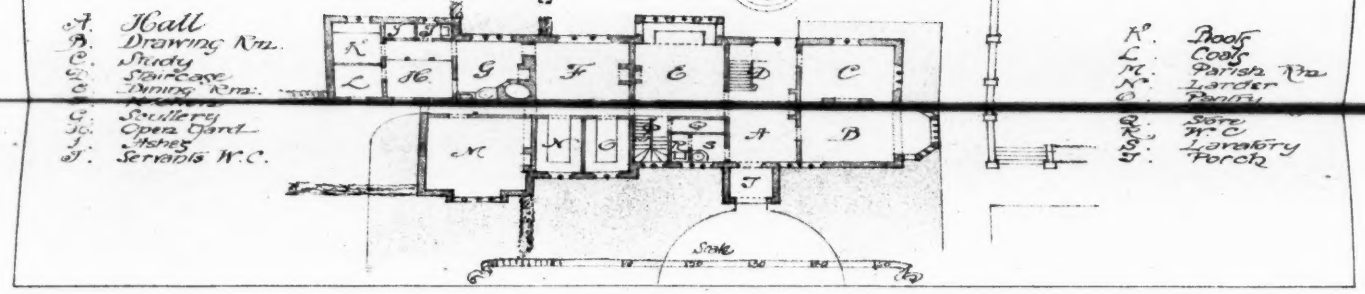

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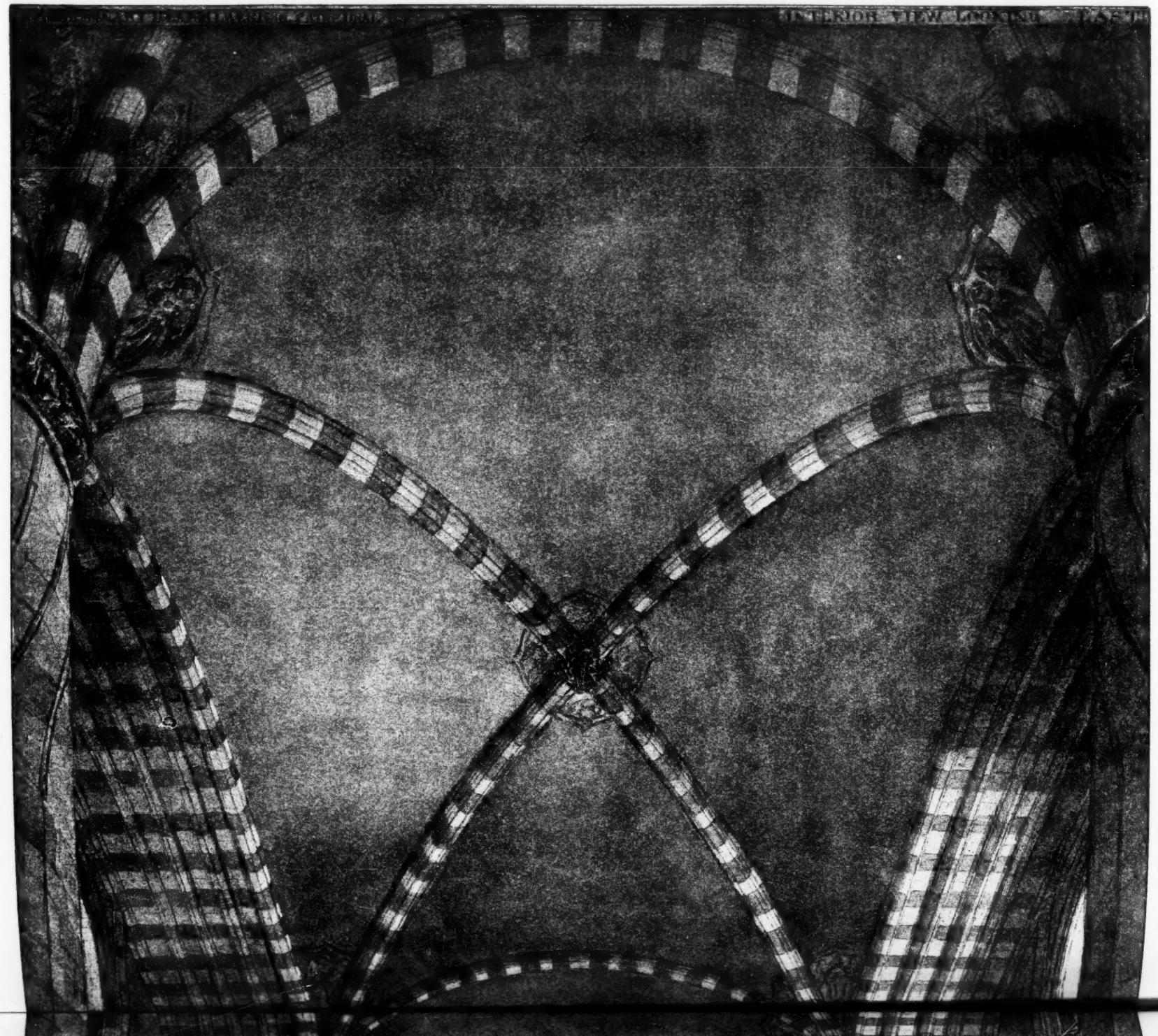

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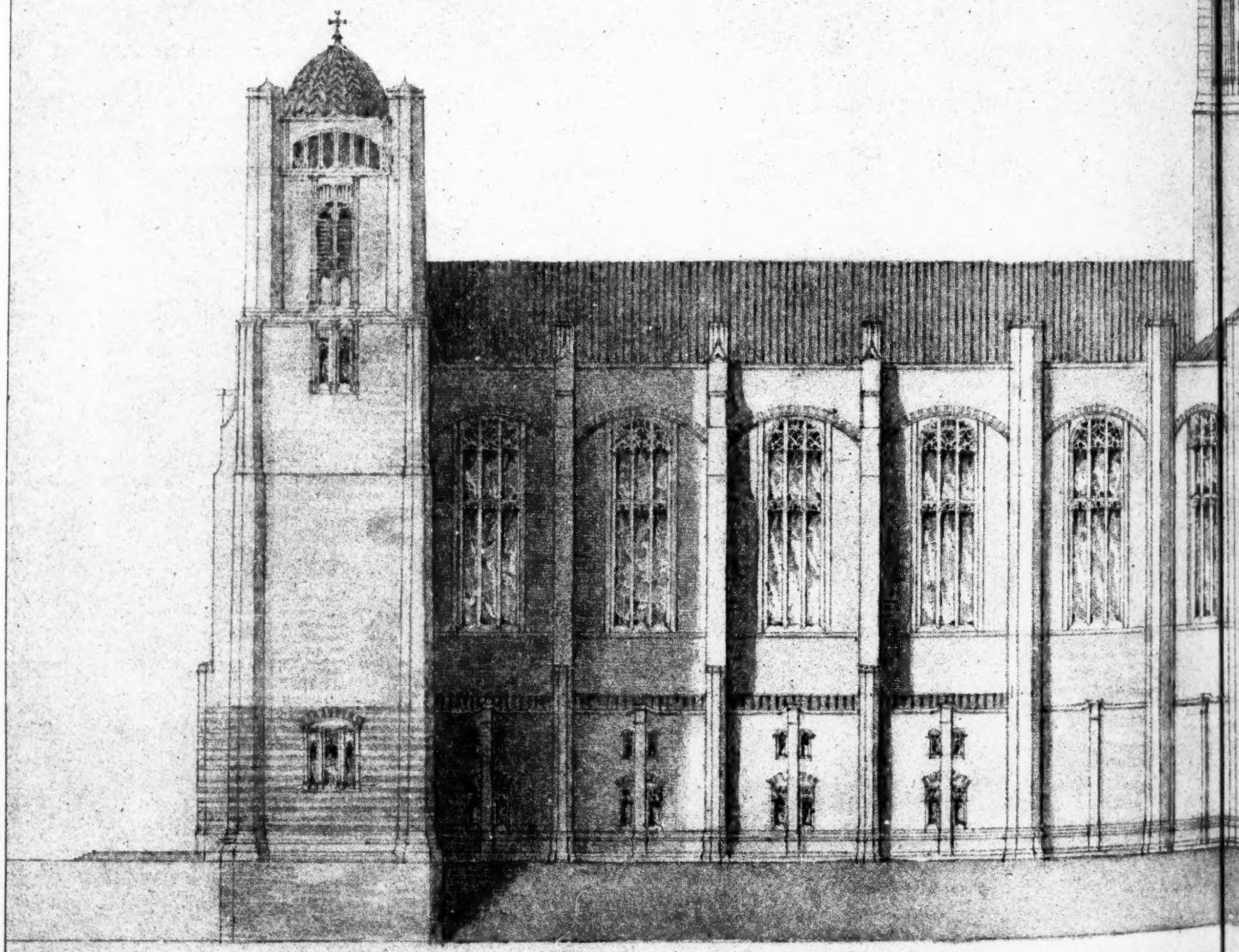
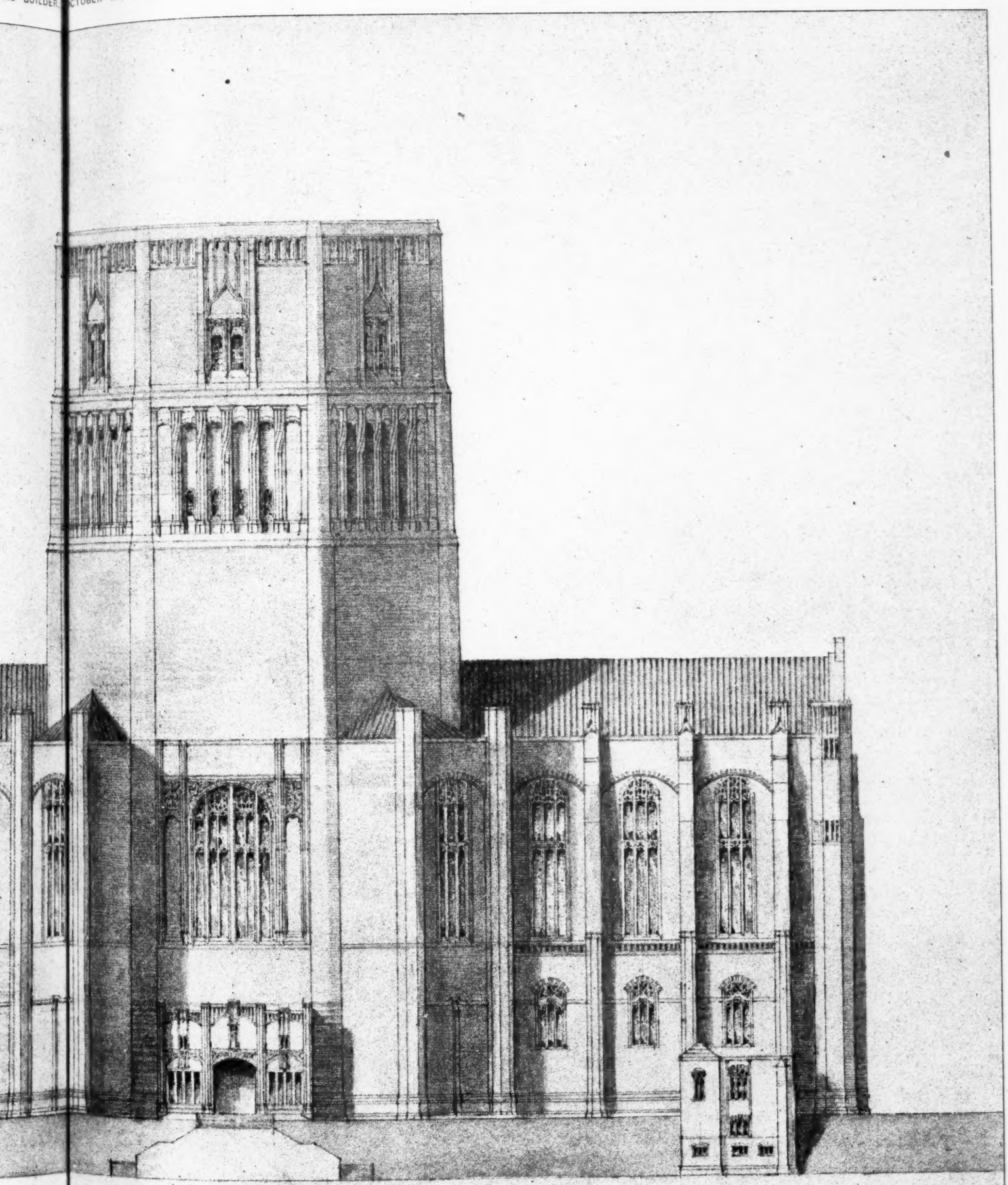


Side Elevation

Scale



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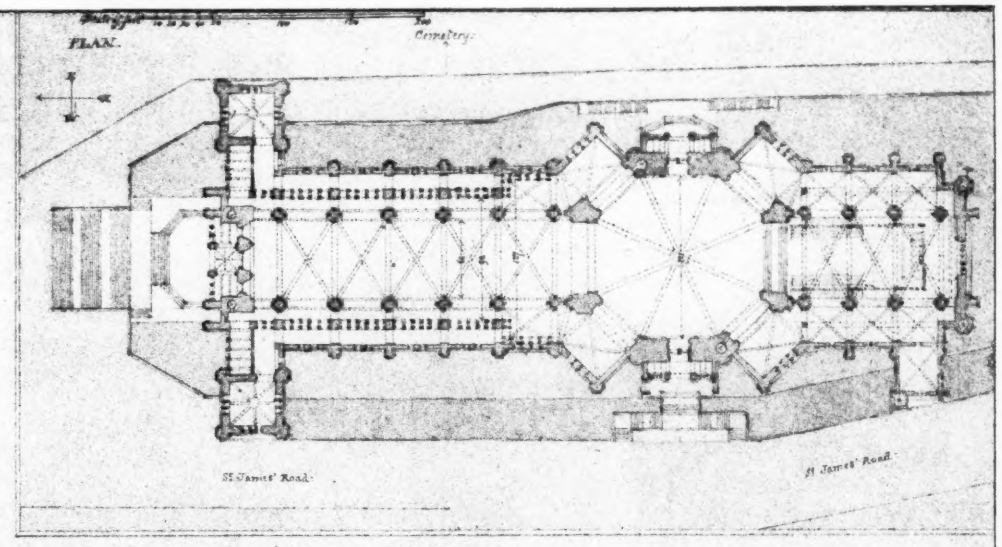

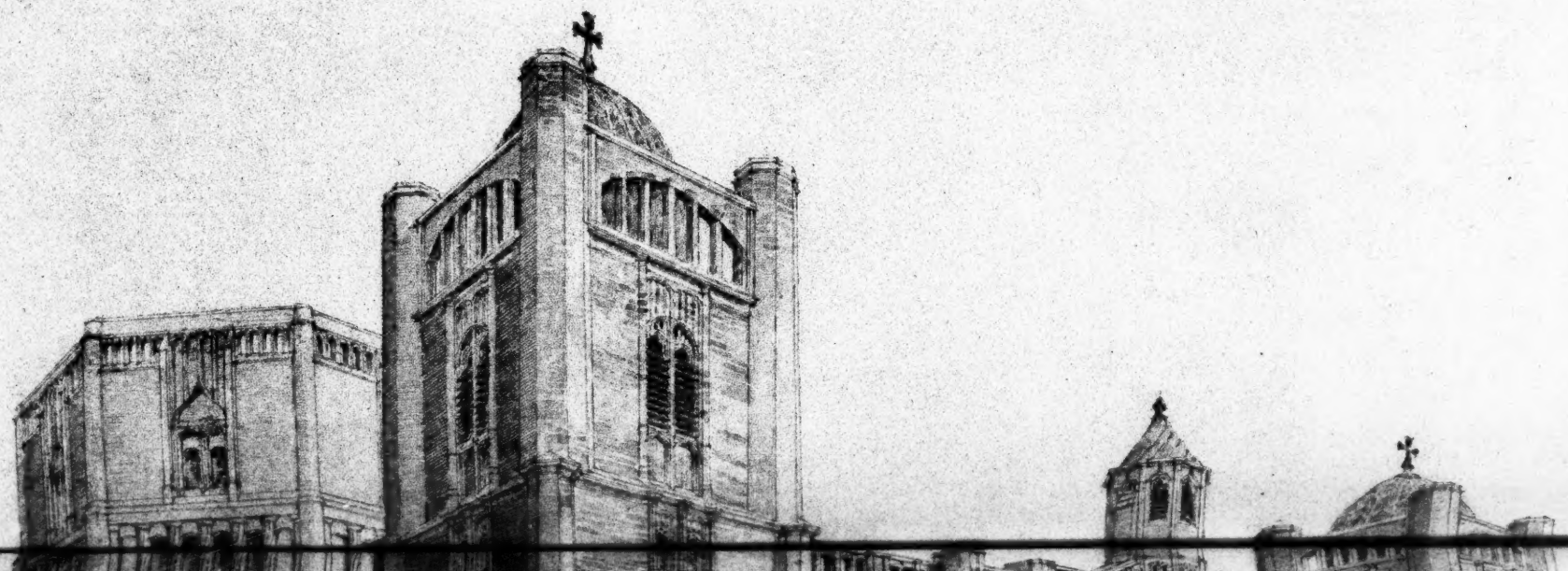
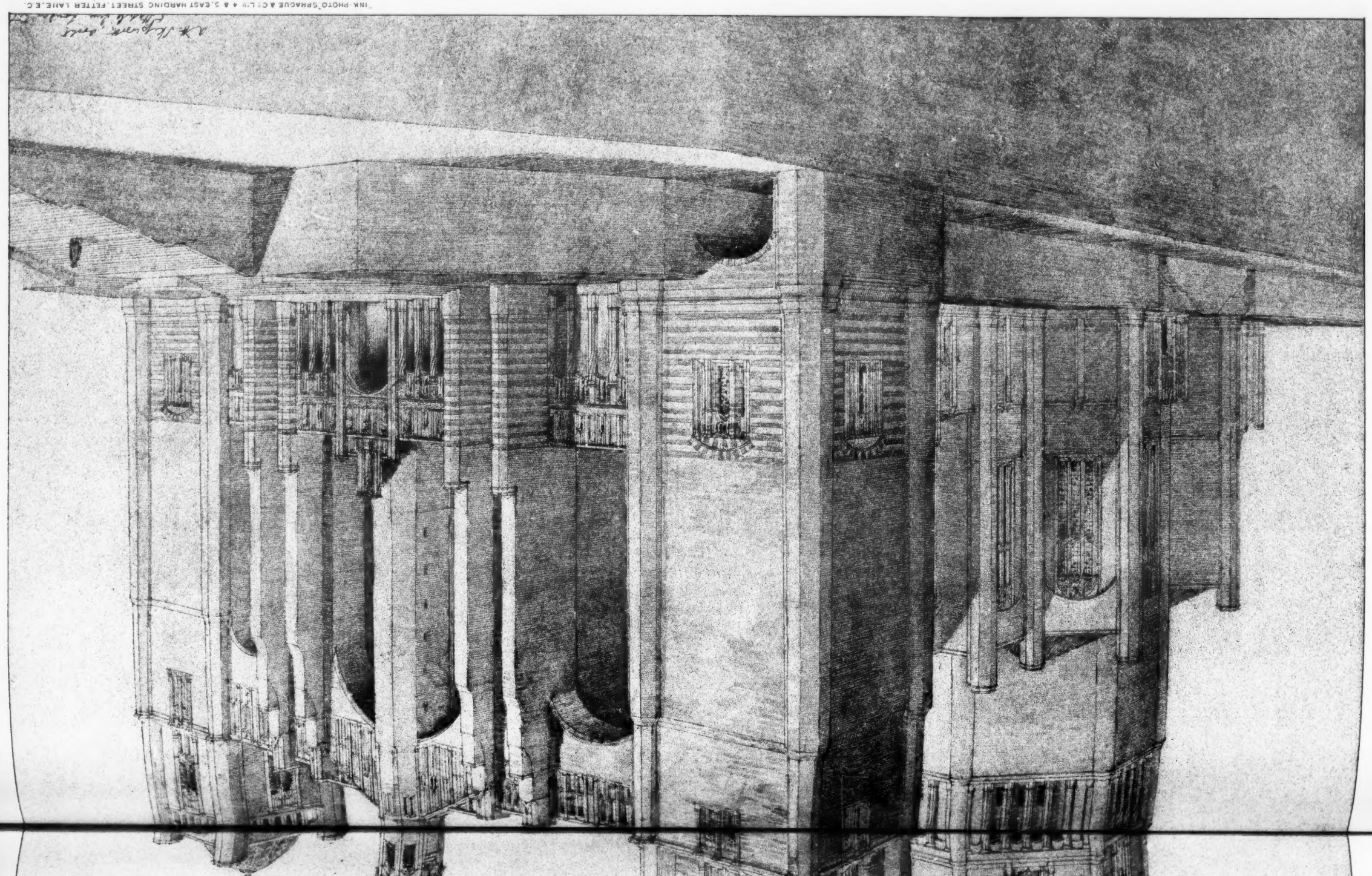
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